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Changing Viewpoints in Neurology as Illustrated by Certain Aspects of Cerebrovascular Disease

J. ST. C. ELKINGTON, *M.D., F.R.C.P.*, London

• **The touchstone of success in the progress of clinical neurology during the latter half of the last century was the careful correlation of clinical observations with the known anatomic facts and, later, the pathologic and physiologic knowledge of the central nervous system.**

During the past twenty-five years the limitations of this classical approach have become apparent, as has the need for newer methods and the adoption of a dynamic and functional concept to complement the static and structural one hitherto so successful.

In respect to cerebrovascular disease, there are significant facts not readily explained in the relatively simple terms of morbid anatomy, such as the finding that in many cases of recent brain infarction no evidence of occlusion of an appropriate artery could be demonstrated, while on the other hand complete occlusion of a cerebral artery can occur without any resultant softening in the area of distribution.

The increase in knowledge of the cerebral circulation derived from angiographic studies, and the progress in recognition of the very variable clinical syndromes produced by occlusions of the internal carotid and basilar arteries underline this change from a static to a dynamic concept of disease, a change which has been responsible for the exploitation of the technical advances in the fields of cerebral surgery, neuroradiology and neurophysiology. Inevitably such an approach will likewise insure the success of neurochemical and related techniques which, more and more, are being used in neurological investigation and on which the future growth of neurology increasingly depends.

THE BRANCH OF MEDICINE that we call neurology was founded upon a careful correlation of the facts observed in the wards and out-patient clinics with the known tenets of the anatomic and later of the pathologic and physiologic principles of the central nervous system. This enabled it to get away to a flying start in the exciting period during the latter half of the last century when medicine was in transition from a craft to an applied science and was responsible for the fact that for two generations, and perhaps more, neurology was the most advanced branch of medicine and attracted to its study some of the most eminent members of our profession.

But the very qualities that made neurology attractive to those who sought to apply to medicine the principles of science impressed upon it a certain rigidity. Like a growing tree, as it became mature it became more fixed in shape, the rate of growth at the circumference slackened and the opportunities to throw out fresh branches grew less.

Fortunately, there have always been the exceptional minds that saw beyond the physical facts to

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the principles that lay behind them. Probably the greatest of the possessors of such minds was Hughlings Jackson. His chosen raw material for study was epilepsy, but he was not interested in morbid anatomy, or in the anatomy of the normal, or even in such physiologic knowledge as was available to him in his day. He invented his own physiologic delineations as he went along, as we can see from his definition of epilepsy as "an occasional, sudden, excessive, rapid and local discharge of grey matter,"[8] or in his description of the state of a patient who suffered from focal fits beginning in one foot. He wrote, "The patient was not really well when he came to my house. He had a persistent discharging lesion presumably of a few cells in his leg centre (perhaps only some of the hallux centre); he always carried it about with him . . . a persistent, quasi-parasitical, hyperfunctional part of himself."[9] The researches of the past half century have gone far toward bridging the gap between Jackson's physiologic concepts and ours, but in the meantime his generalizations have had a profound influence on the development of neurology and, indeed on the development of medicine in a wider field.

I am inclined to think that when an unbiased judgment can be formed, Pavlov and Freud will be found to be of a stature comparable to that of Jackson, for each by an act of imagination, inspired and guided by observation, provided an explanation of abnormal behavior at a distance far removed from anything which can at present be explained on the materialistic basis of the so-called "basic sciences."

In our present time, neither has assumed his final position among the great men of medical science. The reputation of one suffers from the effects of geographical isolation; that of the other, from the excessive enthusiasm of his disciples.

But by and large neurology, in its orderly growth, has been tied to morbid anatomy and in the past 25 years the limitations of that faithful guide have become more and more apparent. If neurology is to progress in the future as rapidly as it has done in the past, it must learn to use newer methods and to replace a static concept of disease with a dynamic one. It must accustom itself to think more in terms of function and less in terms of structure.

An apt illustration of this need is afforded by the history of polyneuritis. All the resources of morbid anatomy have shown no more than the general evidence of degeneration in acute cases and of replacement and repair in chronic cases. Plenty of evidence of the crime, but of the criminal—not a trace. The gradual accumulation of such pieces of evidence as have been provided by studies of ortho-cresol-phosphate poisoning, porphyria and of certain polyneuritides in the animal world, as well as of deficiency diseases, has made it clear that the answer must be sought in terms of enzyme and electrolyte chemistry and that it is beyond the range of morbid anatomy with its present technical equipment.

This was clearly in the mind of Sir William Gowers when he wrote, ". . . its cause is the presence in the blood of some virus, often an organic or inorganic chemical compound to which the nerve fibers are susceptible, just as they are susceptible to curara."[4]

Less obviously the limitations of morbid anatomy are to be observed in respect of cerebral vascular disease. It has been customary to subdivide this group of disorders into the slow processes of degeneration brought about by progressive diminution of the blood supply to the brain on the one hand and cerebral vascular accidents on the other.

These latter consisted either of some form of hemorrhage or of softenings which were due either to thrombosis or embolism in the vessels that were called end-arteries. It was a tidy, well arranged concept that satisfied everyone, for seldom did the clinician who saw the patient during life examine the brain after death, and the pathologist who examined the brain with greater or less care according to his interests was seldom in a position to know or to assess the importance of the vagaries that the patient showed during life. At best it was an attempt to explain a dynamic situation in terms of a static pathologic observation.

As Adams[1] has written, "Pathology presents one facet of disease, an important one, for it depicts the final, irreversible and often fatal stage of a morbid process."

I take it that he here used the word *pathology* as synonymous with *morbid anatomy*, whereas I should prefer to reserve it for a wider sense, to cover all departures from normal function whether or not they are permanent or detectable by visual methods.

Now, if there is one thing that is certain about the cerebral circulation, it is that it is not static. No one who has ever seen a cerebral operation can doubt that it is in fact a surging maelstrom of activity. At each heart beat almost one-fifth of the outflow from the left ventricle passes to the brain. Although the brain makes up only 2 per cent[12] of the total body weight, it consumes 17 per cent of the glucose and 20 per cent of the oxygen used by the whole body.[10] Weight for weight it uses ten times more glucose than any other tissue in the body.

Little wonder that diminution of the rate of blood flow, either general or local, is quickly followed by

disturbances of function and, if it persists beyond a certain critical time and at more than a critical intensity, by the "final, irreversible and often fatal stage of a morbid process."

There are a number of significant facts in cerebral vascular disease that were not easily explained in the relatively simple terms of orthodox morbid anatomy. It has frequently been noted that in many cases of recent brain infarction[2] (Adams found this to be the case in 64 per cent of 128 cases of softening) even the most careful search failed to demonstrate an occlusion of the lumen in the appropriate artery. On the other hand, cases of complete occlusion of such an artery as the middle cerebral, as proved by angiography or autopsy, can occur without any resulting softening in its area of distribution. It used to be believed that the only scope for effective collateral circulation in the brain was through the anastomoses of the circle of Willis. Thanks to angiography it is now known that (at any rate in respect of the circulation over the convexities) there is a considerable anastomosis between contiguous vascular fields which rapidly increases in efficiency if circumstances call it into play, a fact that is in conformity with clinical as well as with pathological observation.

Another clinical syndrome difficult to explain in terms of a static pathologic condition is the attacks of so-called "vasospasm" or small premonitory strokes. At irregular but increasingly frequent intervals the patient experiences transitory monoplegia, hemiplegia or dysphasia, sometimes hemianopia, lasting only for a few minutes or even seconds and passing off completely until at last the defect persists and it becomes clear that the brain has been permanently damaged. In the past the most favored explanation of these episodes was that they were caused by vasospasm, in spite of the fact that direct evidence of such spasm was lacking and that the facts of the case ran counter to what was known of the rare phenomenon of spasm of the cerebral vessels when it did occur.

Proved vasospasm, such as occurs in puncture, clipping or other injuries to the vessels and in subarachnoid hemorrhage, seems to result from stimulation of the outer aspect of the vessels and is a process which only passes off slowly. It seems incredible that arteries which *ex hypothesi* are already hardened and degenerate should suddenly contract to a degree capable of causing ischemia in the tissue supplied by them and as suddenly dilate again.

Notable light has been shed on these events by the increase of our knowledge about occlusions of the internal carotid and basilar arteries that has come about in the past ten years.

The classic syndrome of thrombosis of the internal carotid artery has been recognized for generations. The sudden onset of massive hemiplegia with sensory loss and usually hemianopia and, if right sided, with aphasia, often preceded by a convulsion and followed by increasing stupor, is described in all the textbooks, which usually go on to say that blindness and optic atrophy on the side opposite the hemiplegia is rare but very characteristic when it occurs. Gowers commented on the fact that this syndrome was remarkably uncommon.

It certainly was not talked about among English neurologists and I doubt if a search of the records of the National Hospital in the 1930's would reveal a single case so diagnosed. And yet we now know that the condition is relatively common and as early as 1942 Hultquist[6] had reported that 4.4 per cent of a series of 1,300 unselected autopsies showed complete occlusion of one internal carotid artery. One must conclude that cases of the same kind occurred earlier but were unrecognized, being usually misdiagnosed as some primary form of cerebral vascular accident, particularly thrombosis of the middle cerebral artery.

For illustration, I may cite the case of an apparently healthy but tired army officer in his late 30's whom I was asked to see in about 1944. During the 48 hours before I saw him he had had about twenty attacks of transitory right hemiplegia with aphasia. These came on suddenly with stoppage of speech followed by total flaccid right hemiplegia which lasted for a minute or so and then passed off completely.

As I completed my examination, in which I had noted no abnormalities, he said, "It is coming on." He became speechless, the right side of his face became flat and the corner of his mouth drooped. The right arm, around which I still had the sphygmomanometer cuff, fell limply to his side, and his right leg was totally paralyzed. As I was taking his plantar reflexes, he said "It has gone now." His face had come to life and within seconds the strength in his arm and leg had returned to normal. It was the most dramatic thing I have ever seen at the bedside. I told my house-physician that it was for all the world as if some one had turned off a tap and then turned it on again. But I had no idea what I was looking at and when a few hours after his admission to hospital he had another attack which did not clear up but left him with a permanent hemiplegia, I still did not realize, as I do now in retrospect, that this was a truly classical case of internal carotid thrombosis. My failure to recognize it was the more reprehensible for in 1914 Ramsay Hunt[7] wrote an excellent paper on the subject,

coining the appropriate phrase "cerebral intermittent claudication."

In England it was the development of cerebral angiography that demonstrated the relative commonness of carotid occlusion or stenosis. We now know that the so-called "classical syndrome" is an uncommon way for carotid thrombosis to present itself. In many cases the process takes place without the brain's being damaged, even without the patient's experiencing any symptoms, and the condition is found unexpectedly by angiography or at autopsy. Here it must be assumed that the collateral circulation through the anterior and posterior communicating arteries has been sufficient to maintain an adequate blood flow through the peripheral distribution of the occluded carotid.

More often the clinical picture is one of recurring transient episodes of disturbed function of the parts of the nervous system nourished by the defective artery.

Of these episodes, sudden numbness or weakness of the hand or the side of the face is the commonest. It usually occurs on the right side—for some reason the left carotid artery is affected about three times as often as the right—and it is then accompanied by disturbance of speech. Attacks of dysphasia may occur alone or the hemiparesis may spread to the leg, and although it is transient, it may be severe. The patient may feel faint during these attacks and occasionally convulsions, either focal or general, follow the premonitory "feeling." Unilateral headache is common. Occasionally attacks of transitory blindness occur in the eye on the same side as the diseased artery. These incidents may recur at intervals over a long period and may remain the only evidence of carotid occlusion or they may eventually be followed by hemiplegia, usually of sudden development.

Occlusion of the basilar artery has much in common with that of the carotid both in its history and in its pathologic and symptomatologic manifestations. Reading the literature on the subject, one might think that the condition was unknown until 1946. This is not correct, as the following quotation will show:

> ". . . In occlusion of the whole basilar the limbs of both sides are usually affected, sometimes at the same time, sometimes successively in the course of a few days. The limbs on one side, for instance, may become weak and improve; a day or two afterwards the other side becomes weak, and then there is again loss of power in the side first affected. The affection of the facial or fifth nerves may present the same variations, and often does not correspond to the affection of the limbs. There is usually considerable impairment of articulation and of swallowing. Loss of the conjugate movement of the eyes, from palsy of external and internal recti, is occasionally observed, with or without palsy of the facial nerve on the side of the affected external rectus. This, however, less frequently results from softening than from tumor. When the obstruction involves the upper part of the vessel, as is usually the case in embolism, there are usually ocular symptoms other than the conjugate deviation, ptosis, contracted or dilated pupils, with loss of reflex action to light, sometimes transient. There is occasionally paralysis of the whole or part of one third nerve, or even of both. Less common is hemianopia, from extension of clot along one posterior cerebral beyond the origin of the posterior communicating artery. Bilateral loss of sight, theoretically possible, is excessively rare. Obstruction of the lower extremity of the basilar is not common, except as the result of the extension of a clot from one of the vertebral arteries. The onset of obstruction of the basilar is usually attended with a distinct apoplectic seizure, usually transient; it often recurs, and gradually deepens. The patient may lie for some days in a state of incomplete coma, can be roused to open his eyes, but does not speak. Convulsions occasionally attend the onset, but are on the whole not frequent; they may be general or partial; one limb or one side of the face may escape. Rigidity or clonic spasm in the legs or arms is much less common than in hemorrhage into the pons."

This quotation is not taken from some obscure paper of the 1930's but from the American Edition of Sir William Gower's *Textbook of Neurology*,[5] published in 1888. It is a piece of descriptive writing of high quality and little can be added to it as regards the picture of the sudden occlusion of the basilar trunk by massive thrombosis or embolism, although we may note that severe headache is a common additional symptom.

The value of Kubik and Adams' paper[11] which was based on a careful clinicopathological analysis of 26 cases of basilar thrombosis in which autopsy was done, did not consist in the description of the fully developed syndrome, accurate though this was. It added very little to our knowledge of the picture of the final catastrophe, but it made it clear that many of these patients had had premonitory symptoms over a considerable period which were sufficiently characteristic to be recognizable for what they were.

Amongst these transient symptoms one may especially mention numbness of one side or both sides of the face, diplopia, giddiness—usually consisting of a feeling of disequilibrium but sometimes mounting to true vertigo, tinnitus, staggering gait, numbness and weakness of one arm or leg or the whole of one side of the body. Episodes of dysarthria or of dysphagia may occur. All these symptoms can be related to sudden, transitory disturbances of function in the brain stem. Even more characteristic when they occur are the brief attacks of hemianopia or of complete loss of vision which result when the circulation fails in one or both posterior cerebral arteries.

What is the explanation of these sudden transient episodes that are so characteristic of occlusion both of the carotid and basilar arteries?

The three arteries are very comparable in size and are similarly affected by disease processes. Leaving aside the effects of trauma and of massive embolism, both of which are likely to produce sudden total obstruction with disastrous results, the essential cause of occlusion is atherosclerosis. In arteries of wide caliber this gives rise to an occlusion of gradual development. Narrowing of the lumen and tortuosity are the first stage, followed by the gradual formation of clot at the periphery that then encroaches more and more upon the lumen. Pathological examination often shows the clot to be laminated with recanalization at the periphery and a narrow central channel.

One must suppose, therefore, that in such cases the blood flow is not suddenly cut off but gradually reduced to a sluggish stream which may or may not be finally cut off altogether. But in either case time has been given for the maximal development of the collateral circulation.

In the transitory episodes that I have been talking about, it seems most unlikely that anything fresh has happened in the thrombosed artery, at any rate in its diseased portion. The incidents are far too brief for this.

The explanation most often advanced has been that of spasm in the peripheral branches of the diseased artery, and for reasons I have already mentioned this seems to me to be a wholly unsatisfying explanation. One must look further afield.

Supposing that the left internal carotid artery is obstructed, the maintenance of the blood flow in its peripheral branches is dependent upon an adequate inflow from the anterior and posterior communicating arteries. If there is a reduction of this—say of 20 per cent—such as might easily result from comparable disease processes going on in them or even in the right carotid or the basilar, then the brain tissue to suffer first might well be that supplied by the left carotid, and particularly by its most tenuous branch, the middle cerebral. But such a process would not account for the intermittency of the attacks.

A simple analogy will readily occur to the mind of anyone who has ever lived on the fourth floor of an English home. Your bath tap is running nicely and someone turns on the tap in the kitchen. The bath tap ceases to run. There is no obstruction. Nothing fresh has happened. This incident has no morbid anatomy. There was simply not sufficient head of pressure to go round. The kitchen tap is turned off and the bath tap flows again as if nothing had happened.

Surely, some comparable event is the most likely explanation of the incidents we have been considering. We tend to think of the general circulation as a constant, but it is not so. Every change in our posture, a meal, a brisk walk must call for a redistribution of the available blood.

Anyone who makes a practice of taking the blood pressure must know how rapidly and widely it fluctuates under what appear to be constant conditions. What happens if we have a run of extra systoles or a fit of coughing or if we give blood for a transfusion or have an attack of diarrhea, to quote two examples mentioned by Denny-Brown[3] in connection with cases of basilar occlusion?

It seems, therefore, that we must consider the cerebral circulation as a whole rather than in parts, as a constantly fluctuating stream broken up into many parts where what is happening in any one channel is as much dependent upon what is going on in the circulation as a whole, as upon the local conditions in that channel itself.

If I am right in my contention that we need to cultivate a more dynamic attitude toward disease, can we gain any guidance for the future? I believe that we can. Is it not possible that what is true of cerebral vascular disease is equally true of multiple sclerosis? May not what applies to polyneuritis apply equally to motor neurone disease?

The development of neurology might be compared to the ascent of a mountain valley. At first the valley is wide, the slope is gentle and there are flowers for the gathering wherever the eye turns. Those days are long since passed.

The valley gradually narrows and grows steeper. There are still a few flowers to be found but they need looking for and are usually hidden in the rocks.

Finally one is faced by a circle of precipices that can only be scaled by using special techniques. That is where we are today. The progress of knowledge in neurology now goes forward in jerks and pauses. A new technique is developed which brings a spurt

of progress and then, as its force is spent, progress gradually slows again until the next new technique is discovered.

In my time the greatest technical advance has unquestionably been the development of cerebral surgery, and although its rate of advance is slowing, it has still not spent itself as a means of advancing knowledge. The next most important advance has been neuroradiology which in the past twenty years has completely transformed practical neurology. Electroencephalography has so far proved rather a disappointment and seems to me to have added little of fundamental importance to our knowledge. Its present methods are too crude to analyze the intricacies of the nervous system, and our knowledge of the anatomic and physiologic features of the brain is too elementary to enable us to use the available methods to advantage. But Adrian's work has shown that when the method and the problem are suitably matched to one another, fundamental problems can be solved by the techniques of electrophysiology.

To my mind the technique most likely to give neurology its next forward impulse is chemical analysis. The study of brain metabolism can hardly yet be said to be in its infancy—it is still embryonic. But surely when it is fully developed it will be found to contain the answer to many of the problems which at present seem insoluble.

And who shall say what other techniques at present in an early stage of development, such as electron-microscopy, tissue culture and isotope chemistry, and others still unthought of, will be brought to bear on our unsolved problems during the next twenty years. And when each of them has been fully exploited one suspects that there will still remain, inviolate, the unbridged gulf between the mind and the body.

A practical difficulty which neurology, in common with all other branches of medicine, must find a means of resolving is how, on the one hand, to keep clinicians sufficiently in touch with developments in the basic sciences to enable them to employ them fruitfully and, on the other hand, to give scientists sufficient insight into clinical medicine to enable them to see where their technical advances can usefully be applied.

The National Hospital, Queen Square, London.

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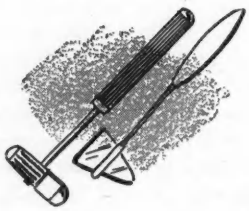


Phenethylbiguanide in Diabetic Patients

Clinical and Metabolic Effects

THOMAS H. LAMBERT, *M.D.*, La Jolla

• **Phenethylbiguanide (DBI) was given to 70 unselected but not obese diabetic patients who were receiving restricted diabetic diets. The only side effects attributed to the drug were anorexia, nausea, vomiting and diarrhea in 28 patients. These symptoms subsided with reduction of dosage. No evidence of serious toxicity has been demonstrated in clinical and metabolic studies. In 27 of the 70 patients diabetes was controlled adequately with DBI alone, and more stable control was obtained in 11 labile diabetics who received DBI in combination with insulin.**

The mechanism of action is not definitely known.

A NEW nonsulfonylurea, hypoglycemic compound discovered recently by Ungar[1] has stimulated further the investigation of effective oral substitutes for insulin in the treatment of diabetes mellitus. This new synthetic drug, N'-betaphenethylformamidinyliminourea hydrochloride (hereafter referred to as DBI) has been reported as an active, potent, hypoglycemic agent, effective in certain animals[8,9,10] and in patients[2,3,6,7] with diabetes mellitus.

The purpose of the studies herein reported was to observe the effects of DBI in 70 diabetic patients. A definite diagnosis of diabetes mellitus had been established previously in all patients of this series. There was careful dietary regulation in each case and none were obese. Administration of insulin had been necessary for adequate control in 59 patients, and control of the 11 patients not taking insulin was unsatisfactory after periods of observation on a restricted diabetic diet alone.

Seventy known diabetic patients, including juveniles and patients with complications such as Kimmelstiel-Wilson's syndrome and osteomyelitis, were studied for periods of from seven days to sixteen months. Fifty-three of these patients were in hospital and 17 were observed as out-patients. Diets were constant and weighed. Before therapy was started these patients had the following studies: Electrocardiogram, blood cell counts, urinalysis, determination of protein-bound iodine, phenolsulfonphthalein test (intravenous), blood urea nitrogen, total cholesterol determination, Bromsulphalein, cephalin flocculation and thymol turbidity tests and determination of total serum bilirubin. During therapy these examinations were repeated at various intervals. Capillary blood glucose determinations, by the Somogyi-Nelson method, were made fasting or three hours after breakfast and lunch. Urine glucose was determined by the Benedict method, at 7:30 a.m., 11:00 a.m., 3:00 p.m. and 9:00 p.m., and 24-hour excretion of glucose was measured for each in-patient and for seven out-patients.

There were 34 males and 36 females in the series. The age range was from 6 to 84 years, the average 53 years. The duration of diabetes was from one year to 29 years, and the average was 10.6 years.

All patients were maintained on a restricted diabetic diet during the period of observation, and criteria for control established previously by Lambert and co-workers[4] were used to determine adequate control during observation. These criteria were as follows:

1. Three-hour postprandial "true" blood sugar levels*, of less than 150 mg. per 100 cc.
2. Reasonable 24-hour urinary excretion of sugar (that is, less than 7 gm).
3. Prevention of ketosis.
4. Absence of symptomatic hypoglycemia.
5. Tolerance of drug without toxicity.

RESULTS AND REPORT OF CASES

Successful treatment on DBI alone has continued for 27 patients, and 11 patients have maintained more stable control on a combination of DBI and insulin. Administration of DBI was discontinued in 12 patients, even though they had adequate control, because of side effect. Two well regulated patients moved to areas where careful observation was not possible. In 18 patients there was no demonstrable blood sugar lowering effect.

Chart 1 demonstrates the effect in a 40-year-old man with diabetes of one year's duration. His weight was 145 pounds and he had not had adequate control on a restricted diabetic diet with 20 units of insulin daily. Insulin was discontinued for

From the Scripps Clinic & Research Foundation, La Jolla.
Submitted December 2, 1958.

* "True" blood sugar level of 150 mg. per 100 cc. is equivalent to 180 mg. per cent Folin-Wu value of criteria previously established.

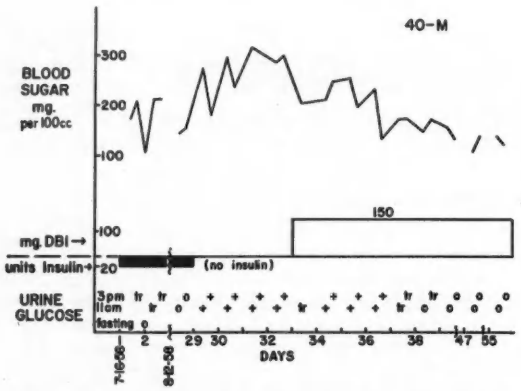


Chart 1.—Diabetic control with 150 mg. of DBI daily in a 40-year-old man after insulin was withdrawn for 4 days (tr. = trace).

four days, with a resulting hyperglycemia and glycosuria, before the administration of DBI.

Chart 2 shows the control in the 48-year-old man with osteomyelitis of the right foot. In this patient diabetes was of seven years' duration and his weight was 153 pounds. He had required 65 units of insulin daily. Adequate control was obtained with 150 mg. of DBI daily, and eventually with 100 mg. After one year the osteomyelitis had subsided and in Chart 3 is shown the result of substituting a placebo for DBI: Hyperglycemia and glycosuria became evident and DBI was resumed.

Chart 4 shows the effect of DBI alone in a 14-year-old boy with known diabetes for one year. Nausea developed with the dose at 150 mg. per day, and DBI was discontinued after six days because of ketosis.

The response to combined therapy of insulin and DBI in a 50-year-old, brittle diabetic woman weighing 112 pounds is shown in Chart 5. Diabetes in this case was of 24 years' duration. She had been observed while receiving a constant, weighed diabetic diet plus insulin for three weeks before trial of combined DBI and insulin therapy. The diabetic condition has remained stabilized.

The patients in whom DBI alone gave adequate control of diabetes were 40 years of age or older, the range being from 40 to 73, with an average of 60.9 years. Daily insulin requirements of patients taking insulin in this group were 15 to 65 units and the mean was 28.5 units.

The average daily excretion of sugar for patients in whom diabetes was well controlled by insulin therapy was 2.6 gm; the range was from 0.6 to 6.5 gm. The average daily excretion when they were receiving DBI was 1.7 gm., and the range 0.6 gm. to 5.9 gm. Dosages of DBI varied. At first, adults were given 150 mg. and children 75 mg. in divided

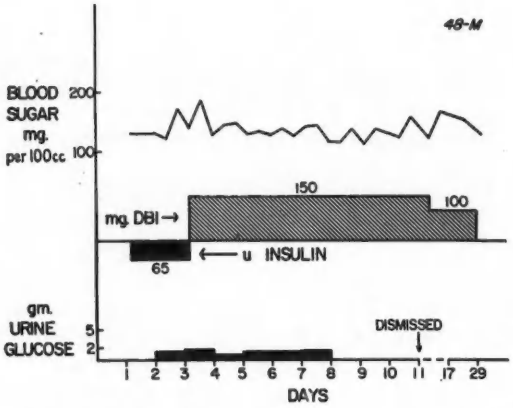
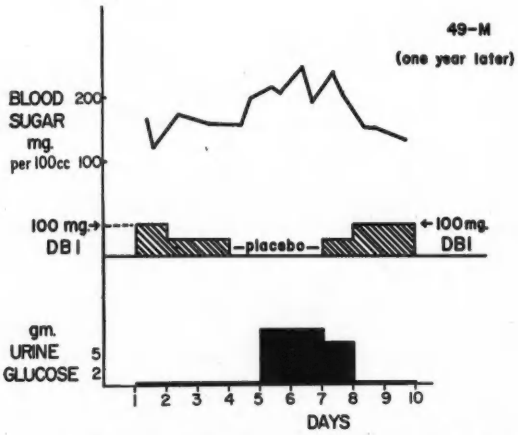


Chart 2.—Effect of DBI in adequate regulation of diabetes aggravated by osteomyelitis.



3. Chart 3.—Demonstration of long term control of diabetic condition of same patient shown in Chart 2. Maintenance therapy with 100 mg. DBI daily for one year preceded placebo of 4 days.

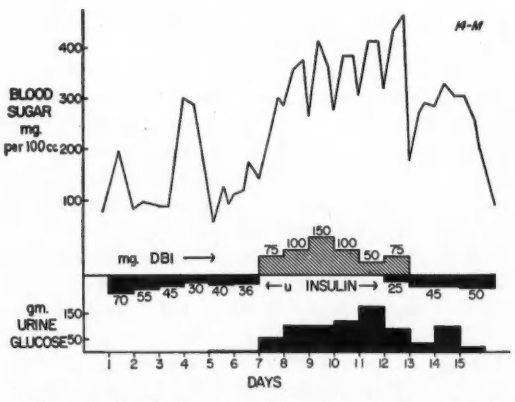


Chart 4.—Ineffectiveness of DBI alone in juvenile diabetic. No response in 14-year-old boy with dosage up to 150 mg. daily.

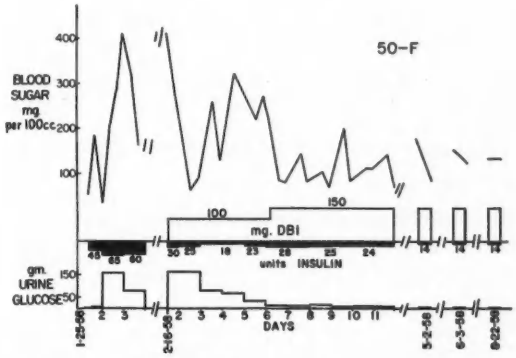


Chart 5.—Stabilizing effect of DBI in combination with insulin in adult labile diabetes.

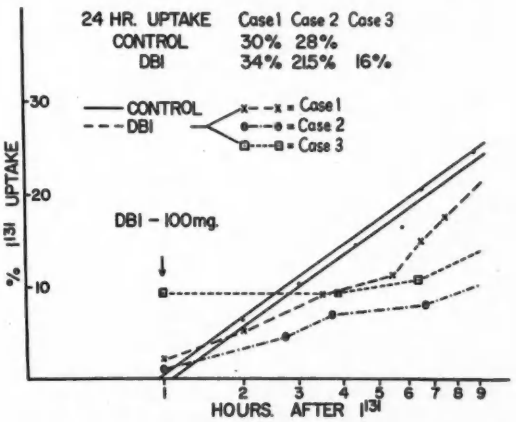


Chart 6.—Temporary effect of DBI in suppressing iodide uptake by the thyroid gland. The solid lines represent the control radioiodine uptake in these patients before the administration of a single dose of 100 mg. of DBI. The broken lines demonstrate the acute effect of DBI upon iodide accumulation by the thyroid in these three patients.

doses daily. Doses as high as 300 mg. were administered before nausea occurred. The patients who had adequate control while receiving DBI required 50 mg. to 225 mg. of the drug daily; the average was 114 mg.

No impairment of liver or kidney function was detected after the administration of DBI, and no changes were observed in repeated hematological studies.

Changes in electrocardiographic tracings of three patients were noted after long continued administration of this hypoglycemic agent, but it was not determined that these effects were due to DBI. There was no significant effect on the electrocardiograms of four patients who had hourly examinations after a single dose of 100 mg. of DBI. Six patients in whom serial determinations of radioactive iodine accumulation were carried out while they were receiving DBI, showed suggestions of moderate, intermittent reductions of iodide accumulation by the thyroid for four to five hours after a single dose of the drug. This effect in three of these patients is shown in Chart 6. The 24-hour I^{131} uptake of two patients was decidedly depressed after two weeks of treatment with the compound, but returned to normal range after four weeks without discontinuance of DBI therapy.

There were no significant changes in the 17 hydroxycorticosteroids in the urine of six patients after they had taken DBI for from two to four weeks.

Fasting control values for serum sodium, potassium, chloride, calcium, phosphorus, bicarbonate and lactic acid were determined for five patients after three days of constant weighed diets, and these determinations repeated after three days of DBI therapy on the same diet. Similar studies were done on 24-hour urine volumes. No appreciable effect on the balance of sodium, potassium, chloride or bicarbonate was noted. Blood lactic acid was elevated in one patient and minor changes in phosphorus balance occurred in three patients.

COMMENT

In the present series of 70 diabetic patients a restricted diabetic diet was maintained before therapy with DBI was begun. They had been observed while being treated by diet alone or diet plus insulin. In some instances, insulin had been discontinued before treatment with DBI and in others DBI was discontinued during treatment, with hyperglycemia and glycosuria resulting in either case.

There was adequate control with DBI alone in 27 patients. Ten of this group had anorexia, nausea, vomiting or diarrhea within the first one or two weeks of treatment. These symptoms disappeared with continuation of DBI in some cases, and with reduction of dosage temporarily in other instances. Thirty-seven of the 70 patients had side effects of this kind. In nine of these patients, either brittle adult or juvenile diabetics, these side effects were attributed to ketosis which was evident as early as 24 hours after DBI was first administered. The side effects experienced by the other 28 patients were attributed to irritation of the gastrointestinal tract or to some unknown cause. Whether the DBI tablets were given before, during or after meals made little difference so far as side effects were concerned, and antispasmodics or antacids taken before or after the drug did not ameliorate these unpleasant and annoying symptoms.

Nine of the patients in whom control of diabetes was obtained with DBI alone or in combination with insulin, who had side effects during the first weeks of therapy with DBI but were able to continue treatment, showed a temporary reduction in weight of

as much as two to seven pounds. By maintaining their required daily total caloric intake, all returned to their standard weight without discontinuance of DBI treatment.

There was a definite hypoglycemic action of DBI and evidence of adequate control in ten patients who discontinued the drug because of nausea and vomiting. Two juvenile and nine adult labile diabetic patients obtained better control with DBI combined with insulin than with insulin alone. Insulin dosages were reduced 50 per cent in some instances.

The suggestion of antithyroid activity of DBI demonstrated by the I^{131} accumulation gradients of six patients and depression of 24-hour I^{131} uptake in two patients cannot be explained adequately. Experimental data[1] points to peroxidase as probably the enzyme that brings about the oxidation of iodide to iodine, and it is possible that phenethylbiguanide may inhibit a reaction catalyzed by peroxidase.

The mechanism of action of DBI has not been established. However, recent studies by Wick[5] and co-workers with radioactive phenethylbiguanide (DBI) showed that this compound, when administered to rats, accumulated in the gastric juice and the liver almost to the exclusion of other tissues. These findings tend to support the previously suggested hypothesis of Wick[11] that the most important site of action of DBI is in the liver. DBI has been shown to inhibit the oxidation of succinate in vitro,[12] which could lead to an increased rate of glycolysis and lactate formation in the liver. The lactate released into the blood from this action of DBI could be readily oxidized by muscle tissue.

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ACKNOWLEDGMENTS: Grateful acknowledgment is made to Dr. Louis Freedman of the U. S. Vitamin Corporation for supplies of DBI; to Dr. Lester Van Middlesworth for his technical assistance in preparation of the I^{131} accumulation gradients.

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Hypophysectomy for Palliation of Breast Cancer

With Especial Reference to Surgical Technique

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• In a series of 19 patients who had hypophysectomy for palliation of cancer of the breast, all had striking relief of pain. Objective evidence of remission of disease was observed in ten patients.

The survival time after operation averaged 19.8 months for patients who had remission and 2.1 months for patients who did not.

Results were better in patients who had had cancer for a long time before operation than in those who had had the disease a relatively short time. Also it was noted that results were better in patients who had had preoperative response to endocrine therapy than in those who had not. Hence these factors may be considered in selection of patients for hypophysectomy.

SUCCESSFUL total hypophysectomy was probably first performed in 1951 by Olivecrona[2] in Sweden, who operated on a 30-year-old man with diabetes mellitus. Later, Luft and Olivecrona reported on a series of hypophysectomies, including nine which were done on patients with cancer of the breast, some of whom showed definite improvement.[3] Soon after the publication of Olivecrona's first series, Ray and Pearson in New York began an objective study of the effects of hypophysectomy on neoplastic disease and the endocrine system. In a series of 74 women with advanced cancer of the breast, 67 survived and 36 of them (53.7 per cent) had remission.[6] For those with remission the average survival of 9.3 months compared with 4.4 months for those who had no remission.*

It has been known for some time that endocrine treatment of metastatic cancer of the breast induces remissions in about half the cases. Just why tumors in premenopausal women respond to testosterone and those in postmenopausal respond to estrogens has never been adequately explained. Luft's interpretation was that the phenomenon involved the inhibitory action of the estrogens on the hypophysis.[4] Pearson and co-workers reported stimulation of cancer growth by beef pituitary somatotropin in a patient who had had a regression of tumor growth for three months after hypophysectomy.[5] Therefore, as Luft has stated, "The purpose of hypophysectomy is two-fold: First, to achieve a complete sex hormone control by elimination of the gonadotropic and adrenocorticotropic hormones, and, secondly, to eliminate other pituitary hormones which are, or can be, associated with the growth of cancer of the breast and prostate."[4]

Material

Selection of the 19 patients in whom the authors carried out hypophysectomy was based on the experiences of Ray and Pearson who looked upon patients with intracerebral or extensive liver metastasis or pronounced cachexia as too poor risks and as having too limited a life expectancy to warrant operation.

Surgical Technique

Refinements in technique that have been evolved over the past three years have immensely facilitated complete removal of the pituitary gland, especially in patients with brain edema or prefixed chiasms. The position advocated by Shelden and coworkers (cited by Freshwater and associates[1]) is recommended: A prone position with blanket rolls on either side of the thorax, the neck sharply extended and the cheeks resting on bilateral cup head rests with the body well strapped down by multiple adhesive strips and the feet resting on a fixed footrest so that the table may then be inclined to a 45 degree angle, putting the patient's face and forehead in a vertical plane directly facing that of the operator. This position results in an almost complete emptying of venous spaces around the sella. It also permits a better view of the sella and pituitary stalk. With the patient under intratracheal trilene-nitrous oxide anesthesia, a transverse incision is made at the hairline of the scalp to obtain subperiosteal exposure of the frontal bone. With a 1½-inch trephine placed so that one edge is slightly over the midline, in order to approach the sella as close to the falx as possible, a bone button is removed.

From the Department of Neurological Surgery, Hartford Hospital, Hartford, Connecticut.

Submitted September 2, 1958.

*Ray has now carried out hypophysectomy in more than 200 patients, accumulating a great knowledge of the effects of this operation on breast cancer growth and on other endocrine dysfunctions; and he continues of the opinion that hypophysectomy is the treatment of choice in the majority of cases of metastatic breast carcinoma. He believes this treatment may well replace other forms of endocrine operation and medication.[7]

(The author formerly used bilateral supraorbital 1½-inch trephine exposures on either side of the frontal sinus, permitting visualization of both walls of the sella turcica, but direct traversal of the frontal sinus, as recommended by Ray, is simpler and quite satisfactory.)

An effort is made to keep intact the mucous membrane by packing the area below the bone button with strips of Gelfoam. There appears to be little danger of permanent rhinorrhea or infection with this approach; it has been used by one of the authors (WBS) many times in fractional undercutting lobotomy procedures. The sella is approached directly alongside the falx, the procedure usually involving sectioning one olfactory nerve after incising the tip of the dura in an inverted T incision, retracting the frontal lobe upward and inserting a thin metal "tunnel" retractor as advocated by Shelden and Pudenz. The tunnel retractor consists of a thin sheet of lead or aluminum cut in the shape of a trapezoid and bent to form three sides of a tunnel which is then slid in along the roof of the orbit holding the frontal lobe away from the floor. It permits adequate visualization of the optic chiasm. A parallel beam headlight is advocated for viewing the depths of the exposure.

With the area exposed, the pituitary stalk is identified and cut close to the diaphragm sella in order to lessen the degree of postoperative diabetes insipidus. The diaphragm sellae is then torn (rather than incised in a cruciate fashion by use of a nerve hood and "cutting" current) to expose the pituitary gland. Should there be a prefixed chiasm, as there is in about one-third of the cases, the space between the chiasm and tuberculum sellae is too narrow to permit good visualization of the pituitary gland. To meet the situation, after reflecting the dura by means of a T incision, the bone of the posterior tuberculum sellae and the anterior wall of the sella turcica are removed with a dental chisel, unroofing the sphenoid sinus and its septum. The mucous membrane is pushed downward with Gelfoam packing and muscle stamps; the optic nerves are elevated by inserting cotton pads under them; the diaphragm sellae is torn open and the circular sinus and anterior dural wall of the sella are coagulated and incised, thereby both unroofing and unwalling the sella turcica anteriorly and exposing the pituitary gland transsphenoidally and anteriorly.

When the pituitary has been thus exposed from above and, if necessary, anteriorly, it is freed in its cavity by use of blunt angled pituitary dissectors developed by Olivecrona, and an effort is made to remove it whole by packing cotton pads around and underneath it, causing it to extrude en masse. Frequently, however, this is impossible and it is necessary to use the sharp angled pituitary ring curets, developed by Ray, for piecemeal removal. The lateral, posterior and anterior dural walls of the sella are thoroughly scraped and in some cases even removed. Bleeding from the cavernous sinus is easily stanched by Gelfoam. With such thorough removal of all contents under direct vision, we have not used Zenker's solution to kill remaining gland cells, although other surgeons commonly inject it into cotton pads within the sella, using suction at the same time to prevent contact with the optic nerves.

TABLE 1.—*Operative Morbidity in 19 Cases After Hypophysectomy*

	Number	Per Cent
Diabetes insipidus	19	100
Rhinorrhea	7	36.8
Optic nerve injury	2	10.5
Convulsions (first postoperative day)	1	5.3

This detailed account of technique is given because total removal of every fragment of pituitary gland, although most difficult, is most necessary for therapeutic benefit. Even with meticulous technique, nests of pituitary cells may sometimes be observed microscopically in the dural lining of patients who die. In the process of closing the wound, Gelfoam is placed in the sella, muscle stamps are left in any opening made in the sphenoid sinus, the "tunnel" retractor is removed so that the frontal lobe can again make contact with the floor of the anterior fossa, the dura is closed loosely, the bone button is replaced without wiring and covered with a layer of thinnest tantalum mesh for cosmetic reasons, the frontal flap is closed and a new type of Ace sponge rubber 3-inch bandage is wrapped snugly overlying the supraorbital flap in order to prevent eyelid edema. Rhinorrhea for two or three days is not uncommon, but in no case in the author's series did it continue for longer than five days.

The preoperative and postoperative management has been thoroughly discussed by other observers.[3,4,5,6] In this series the therapy outlined by Ray and Pearson[6] was followed.

There was one death in the series attributable to operation. This was in a difficult case in which the hypothalamus was traumatized. The patient was in coma postoperatively and died in coma on the 23rd postoperative day. Data on operative morbidity is shown in Table 1.

Results and Comment

Three patients had unsuspected metastatic cancer in the pituitary gland. In each of these patients, removal of the gland caused exorbitant bleeding.

All the patients had striking subjective relief of pain postoperatively, appreciably lessening their need for narcotics. Of the 19 patients, ten showed

some objective evidence of remission of disease. Five of the 19 patients were still living, from one to six months after operation, two of them asymptomatic, two improving and one regressing. Twelve patients had had endocrine therapy or oophorectomy before hypophysectomy, five without relief. The seven who were helped by those means were also helped both objectively and subjectively by hypophysectomy (Table 2). Of the five not benefited by endocrine therapy or oophorectomy, one had relief of pain without objective changes after hypophysectomy and one had objective improvement as well. This tends to suggest that a trial of hormones might be of value in selecting patients for hypophysectomy.

Luft and Olivecrona said that they observed no favorable response in women over 60 years of age. Ray and Pearson reported benefit in several women above that age.[6] Of two women over 60 years of age in the present series, one had a fair result and the other showed no improvement.

The length of time the disease existed before hypophysectomy seemed to be related to the survival time (Table 3) after operation. Patients in whom remission occurred had had cancer for an average of 4.9 years before hypophysectomy, and those without remission had had the disease an average of 2.7 years. As did other investigators, we attempted, without success, to find some correlation between the results of hypophysectomy and other factors such as age of the patient, tumor cell type, response to x-ray therapy and extent of disease.

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TABLE 2.—*Data on Relation of Results of Hypophysectomy to Preoperative Endocrine Therapy and Oophorectomy*

Treatment	Total	Improved by Therapy	Posthypophysectomy Remission
Endocrine alone	9	4	4
Endocrine and oophorectomy	3	3	3
Total	12	7	7

TABLE 3.—*Survival After Hypophysectomy*

	Number	Average Survival	Still Living
With remission	10	19.8 months	4
Without remission	9	2.1 months	1

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Survival in Acute Myocardial Infarction

Factors Observed in 318 Patients

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• **Factors influencing survival in a group of 318 cases of acute myocardial infarction were analyzed.**

The mortality rate for the entire series was 41 per cent. Among the men it was 39.5 per cent; among women, 44.4 per cent. The mortality rate increased with the age of the patient. Twenty-six per cent of all deaths occurred within the first 24 hours, 44 per cent within 72 hours, and 71 per cent within the first week following hospital admission.

Increased mortality rate was associated with previous history of congestive failure, myocardial infarction, hypertension or cardiomegaly. As to circumstances immediately preceding an infarction, the only ones that seemed to be related to a high mortality rate were hemorrhage and the postoperative state. Not only the presence but the degree of shock, congestive failure, cyanosis and dyspnea adversely influenced chances for survival. Duration, location, radiation and number of attacks of pain did not appear to be associated with extraordinary mortality rates. Anterior was slightly more common than posterior infarctions, and the mortality rate was much higher. Thromboembolic complications and certain disorders of rhythm and of conduction definitely worsen prognosis.

Comparison of average mortality data as reported in different studies on acute myocardial infarction is improper and misleading because of the great differences between the kinds of patients included in various series reported upon. A standard method of grading the severity of acute myocardial infarction would help toward sounder comparisons.

THE PRESENT STUDY is an analysis of factors which appear to influence mortality in acute myocardial infarction. It is based on data on 318 patients admitted to the California Hospital between the years 1949 and 1951, inclusive, in which the diagnosis could be established by unequivocal electrocardiographic evidence or by autopsy findings.

Of the 318 patients, 228 were men, 90 women. The age range was from 33 to 86 years (average 61); 83 per cent were 50 to 80 years old and about a third were 60 to 70 years old. The average age of the men was 60 years, and nearly half of them were younger. For the women the average age was 65.5 years and only a fourth of them were less than 60.

Mortality

The difference between the sexes in hospital mortality was not great—39.5 per cent for the men, 44.4 per cent for the women. The average for the series was 41 per cent.

Death rates on certain days following hospital admission are presented in Chart 1. Of 284 patients who survived the first 24 hours, 96 (33.8 per cent) died subsequently. Of the patients surviving the third day, 30 per cent died. Only 25 per cent of patients alive on the fifth day died during the time they were in hospital. Among those alive at the end of the first week, the mortality rate was only 16 per cent, and among those who survived the second week it was only 6 per cent. In other words, the mortality rate among the survivors decreased sevenfold within the first two weeks. It would appear that chances for recovery improved steadily with each day of survival after acute infarction.

While Chart 2 clearly indicates increase of mortality with age, there is also a suggestion—scanty though the data are—that in the fourth and fifth decades the mortality following myocardial infarction is higher in men than in women, while in the ninth decade this situation is reversed.

This work was supported by a grant from the Moore-White Medical Foundation.

Submitted July 8, 1958.

Previous Illness

In agreement with other investigations, the data in Table 1 disclose a mortality of 61 per cent among patients who had had congestive failure—nearly twice as high as among the others. Mortality was likewise high following previous myocardial infarction and among patients with hypertension. Angina, obesity and diabetes mellitus did not appear to influence mortality in this series of cases.

Of the circumstances immediately preceding infarction which are listed in Table 2, only surgical operation and massive hemorrhage (usually gastrointestinal) appear to influence the outcome. Because of the small number with these complications, the

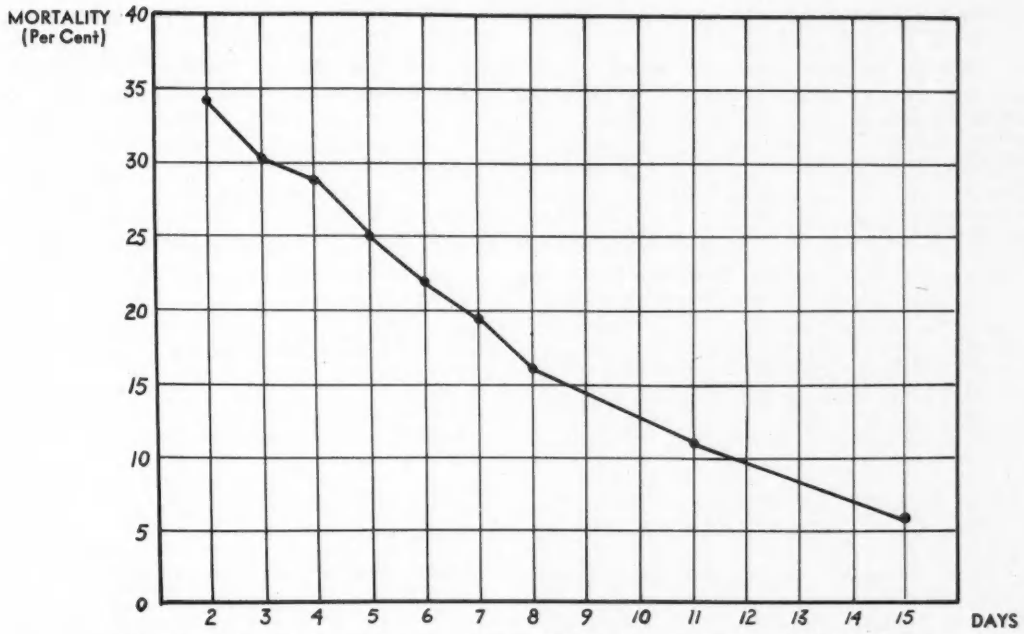

Chart 1.—Progressive decrease in mortality among survivors of acute myocardial infarction.

mortality rate associated with them—75 per cent—is not conclusive. Most infarctions occurred in patients at rest, and for these the mortality was practically the same as for the entire series, while the mortality rate associated with attacks following exertion was lower.

Signs and Symptoms During Hospitalization

Relationship of certain signs and symptoms to mortality is considered in Table 3. Our findings indicated that shock is an important factor — the greater the degree of shock, the poorer the prognosis. Fifty-two per cent of the patients in the series did not go into shock; in that group the mortality rate was 23 per cent. The mortality rate for patients in mild shock, moderate shock and severe shock was 32 per cent, 61 per cent and 84 per cent, respectively.

Not only the presence but the degree of congestive failure, too, influences outcome. The mortality rate among patients in whom congestive failure did not develop (54 per cent of the series) was only 21 per cent. With mild failure, the mortality rate was 23 per cent; with moderate failure, 70 per cent; and with severe failure, 83 per cent.

Cyanosis, particularly in moderate or severe disease, appears to be an ominous sign. This condition developed in 39 per cent of the patients in this series. In 12 per cent the cyanosis was mild; in 18 per cent, moderate; and in 9 per cent, severe. Mortality rates were 46 and 60 per cent in patients mildly and moderately cyanotic and 82 per cent when the degree of cyanosis was severe.

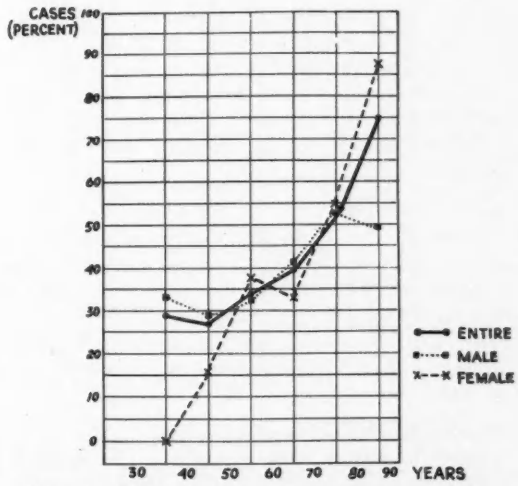

Chart 2.—Relation of age to mortality among 318 patients and for each sex.

Mortality rates associated with mild, moderate and severe degrees of dyspnea was 31 per cent, 54 per cent and 76 per cent, respectively. These observations are in general agreement with those of Rosenbaum and Levine,[10] who reported a mortality rate of 41 per cent in patients with dyspnea, in contrast with 18 per cent in patients with myocardial infarction without dyspnea.

TABLE 1.—*Presence or Absence of Certain Illnesses Before Acute Myocardial Infarction—Incidence and Relation to Mortality*

	Number of Cases	Illness Present		Illness Absent	
		Incidence (Per Cent)	Mortality (Per Cent)	Incidence (Per Cent)	Mortality (Per Cent)
Congestive heart failure	288	24	61	76	31*
Previous infarction	271	23	54	77	36†
Hypertension	294	27	52	73	35‡
Angina pectoris	286	51	37	49	38
Obesity	301	39	45	61	38
Diabetes mellitus	292	9	42	91	39
Vascular disease	292	16	50	84	38
Renal disease	295	12	51	88	39

*Significant at 0.1 per cent level. †Significant at 1 per cent level. ‡Significant at 5 per cent level.

Reliable information on cardiac size—based on roentgenographic or postmortem observation—was available in only 165 of the 318 cases. Of the 34 per cent without cardiac enlargement, 40 per cent died; of the 66 per cent with cardiomegaly, 71 per cent died.

Mild, moderate, and severe degrees of pain were associated with mortality rates of 21 per cent, 35 per cent and 40 per cent, respectively. No statistically significant relationship could be established between mortality and the location, radiation, duration or number of episodes of pain. Ten per cent of the patients in the series did not complain of pain; 73 per cent of that group died. Several of these patients, however, were in deep shock, stuporous or under the influence of narcotics, hence unable to report pain. If these were excluded and only conscious patients who denied pain on direct questioning were considered, the number of so-called "silent infarcts" would have been smaller and the mortality rate undoubtedly less.

Site of Infarction

Information as to the site of infarction, based on electrocardiographic and necropsy findings, was available in 313 cases (Table 4). Anterior infarction, particularly at the septum, had the poorer prognosis, and the mortality was likewise high for those patients with combined anterior and posterior infarctions.

Disorders of Rhythm and Conduction

Table 5 seems to indicate that auricular arrhythmias are actually associated with a lower than average mortality in myocardial infarction, while ventricular arrhythmias apparently worsen the prognosis, as do left auriculoventricular block and atypical bundle branch block.

TABLE 2.—*Circumstances Immediately Preceding Infarction—Relation to Mortality*

	Number of Cases	Incidence (Per Cent)	Mortality (Per Cent)
Hemorrhage	1	0.5	100
Postoperative state	11	6	73
Rest	105	55	42
Exertion	42	22	38
Meal	31	16	32
Emotion	2	1	0

TABLE 4.—*Mortality with Regard to Site of Infarction*

	Number of Cases	Incidence (Per Cent)	Mortality (Per Cent)
Anterior	85	27	34
Anteroseptal	36	11	81
Anterolateral	45	14	51
TOTAL ANTERIOR	166	52	49*
Posterior	101	32	21
Posteroseptal	10	3	70
Posterolateral	16	5	25
TOTAL POSTERIOR	127	40	24*
COMBINED ANTERIOR AND POSTERIOR	20	6	70

*Significant at 0.1 per cent level.

Thromboembolic Complications

Consistent with the thromboembolic nature of myocardial infarction is the high mortality, shown in Table 6, among patients with other evidence of a thrombotic tendency, particularly those with visceral and multiple emboli, all of whom died.

TABLE 3.—*Incidence of Certain Signs in Infarction—Relation to Mortality*

	Number of Cases	None		Mild		Moderate		Severe	
		Incidence (Per Cent)	Mortality (Per Cent)	Incidence (Per Cent)	Mortality (Per Cent)	Incidence (Per Cent)	Mortality (Per Cent)	Incidence (Per Cent)	Mortality (Per Cent)
Shock	311	52	23	15	32	18	61	15	84*
Congestive failure	311	54	21	11	23	20	70	15	83*
Cyanosis	300	61	25	12	46	18	60	9	82*
Dyspnea	305	40	16	14	31	25	54	22	76*
Cardiomegaly	165	34	40	....	....	61	71*	....	....
Severity of pain	290	10	73	5	21	18	35	67	40

*Significant at 0.1 per cent level.

DISCUSSION

Mortality rates in several series are illustrated in Table 7. As can be readily seen, they vary widely—from 3 per cent to 78 per cent. Such studies are not actually comparable for several reasons. In some series, patients dying within the first 24 hours after admission and patients who had had a previous attack were excluded. Some studies deal only with patients treated in private practice, others only with indigent patients, and still others a combination of the two. A perusal of these studies, as well as others, has suggested to us that investigators of survival in acute infarction can readily be classified as either "splitters" or "lumpers." The "splitters" have assembled a highly selective group of cases and presented attractively low mortality rates. The "lumpers" on the other hand have collected an assorted group of cases and have obtained an average mortality figure. Since it was apparent from early studies in prognosis that little could be learned from this method, many investigators came to divide their material into groups based on degree of severity as judged by clinical appearance, and then computed mortality rates for each group. The problem to date is that seldom have two investigators used the same criteria for grouping cases.

One method used to grade cases of acute myocardial infarction for prognostic purposes is the "good risk-bad risk" method of Russek and Zohman.[11] Applying their criteria to the data here presented, the authors found a 50 per cent mortality among the "poor risk" cases and a 10 per cent mortality among the "good risk" cases. However, among the "good risk" patients who died, there were four who, although they fulfilled the Russek-Zohman criteria, certainly could not be called bona fide "good risks": two were comatose and two had advanced carcinomatosis. Without these, the number of "good risk" cases was 72 and there were three deaths, or a mortality rate of 4 per cent. This compares favorably with Russek and Zohman's[11] report of a 3 per cent mortality in their "good risk" series. It may be concluded that if a patient is "good risk" at the time of admission to the hospital, survival from an acute attack can be predicted with a high degree of probability. This is in substantial agreement with the findings of the Committee on Anticoagulants[15] which concluded that the physician's appraisal of severity of a myocardial infarction at onset has high predictive value.

Schnurr[12] devised a semiquantitative method for grading the severity of acute myocardial infarction in which numerical values are assigned to clinical findings at the time of hospital admittance. The total number of points allotted to each case is its pathologic index reading (PIR). The authors have ap-

TABLE 5.—*Mortality with Regard to Disorders of Rhythm and Conduction in Infarction*

	Number of Cases	Incidence (Per Cent)	Mortality (Per Cent)
AURICULAR ARRHYTHMIAS			
Auricular tachycardia	6	2	33
Auricular fibrillation	20	7	30
VENTRICULAR ARRHYTHMIAS			
Ventricular tachycardia	6	2	67
Frequent ventricular premature contractions	22	6	55
AURICULOVENTRICULAR BLOCK			
1st degree	14	4	50
2nd degree	4	1	50
3rd degree	2	0.6	50
BUNDLE BRANCH BLOCK			
Right	11	3	27
Left	10	3	70
Atypical	7	2	86

TABLE 6.—*Mortality with Regard to Thromboembolic Phenomena in Infarction*

	Number of Cases	Incidence (Per Cent)	Mortality (Per Cent)
Phlembothrombosis	20	6	55
Embolism, cerebral	8	2	50
Embolism, peripheral	1	0.3	100
Embolism, pulmonary	16	5	87
Embolism, visceral	8	2	100
Embolism, multiple	6	2	100

TABLE 7.—*Mortality Rates for Acute Myocardial Infarction in Published Series*

Investigators	Year	No. of Cases	Type Service	No. of Attacks	Mortality (Per Cent)
Parkinson & Bedford[9]	1928	100	H, W, P	A	23
Levine & Brown[4]	1929	143	W, P	A	53
Conners & Holt[3]	1930	287	H, W, P	A	16.1
Master, et al.[6]	1936	267	H, W	1	16.5
Rosenbaum & Levine[10]	1941	208	W, P	1	33
Woods & Barnes[14]	1942	128	P	A	47
Newman[8]	1946	50	M	A	78
Mintz & Katz[7]	1947	572	H, W, P	1, 2	21.8
Smith, Keyes & Dunham[13]	1947	920	P	A	23.3
Billings, et al.[2]	1949	240	W	A	40.4
Baer, et al.[1]	1951	182	H	A	8.5
Russek & Zohman[11]	1951	1047	....	A	33.4
Russek & Zohman[11]	1951	489	....	1	3.1
Present series	1956	318	P	A	41.0

H—Home Patients W—Ward Patients P—Private Patients M—Military Personnel

TABLE 8.—*Distribution of Cases and Mortality Rates According to Pathologic Index Rating* in Three Series*

Pathologic Index Reading	Series					
	SCHNURR		PRESENT SERIES		LINKO	
	Cases	Mortality (Per Cent)	Cases	Mortality (Per Cent)	Cases	Mortality (Per Cent)
0 to 19	32	8	24	11	38	5
20 to 39	28	26	15	13		
40 to 59	20	35	19	34	34	17
60 to 79	12	82	18	63		
80 plus	8	95	24	77	38	55

*Pathologic index rating (by the method of Schnurr) is arrived at by assigning numerical values to various clinical findings at the time of admittance to hospital.

plied this method to the data herein presented and have compared it with a series of Schnurr[12] and also with a series of Linko,[5] a Finnish investigator. The distribution of PIR classifications in the three studies is shown in Table 8, and seems to demonstrate clearly the fallacy of comparing average mortality figures of different series because of the considerable inequality of severely ill patients in each group. For instance, in the series here reported there are three times as many critically ill patients as in Schnurr's group, and in Linko's series there are nearly five times as many. Table 8 also shows mortality rates in the different PIR groups in the three series. In all three there is a progressive rise in mortality rates associated with a rise in the PIR. This suggests that a semiquantitative rating system may be feasible.

Review of the literature brings out impressively the need for some standard method of grading acute myocardial infarction—a method which would be used by most investigators. Tumors, hypertension and rheumatoid arthritis have been classified for prognostic purposes with fair success; why not heart attacks? If some method of classification were generally accepted, it would not only augment knowledge of the natural history of the disease but would supply valuable control data for future investigations of therapeutic agents.

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A Simple Suction Adjunct for Endoscopic Fulguration

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GOOD SIGMOIDOSCOPIC surgical operation is dependent primarily upon good visualization. Smoke and blood often obstruct the view of the operative field during procedures in which desiccating current is used. For most surgeons the expensive combination electrode-suction appliances are not readily available. An ideal suction mechanism can be made by using discarded intravenous tubing from a standard intravenous drip set. The plastic tubing is taped to the desiccating electrode with one end near the cauterizing tip. A small hole is then cut in the side of the tubing near the place the surgeon puts his hand when using the instrument. When the other end of the tubing is attached to a source of suction, blocking the hole with the thumb induces suction at the site of operation. This is much like the Gorsch electrocoagulation and suction handle device but is far cheaper; and if it becomes plugged with clots or other firm matter, it is far easier to clean. If need be, the tube can be replaced quite easily.

Although the improvised device is bulkier than the Gorsch instrument, it is not at all cumbersome. It has been used extensively in cervical conization and cauterization and in removal of polyps of the colon or villous papillomae. Recently it has been used to help relieve obstipation due to inoperable rectal carcinoma.

Submitted August 22, 1958.

401 West Beverly Boulevard, Montebello (Bruce Odou).

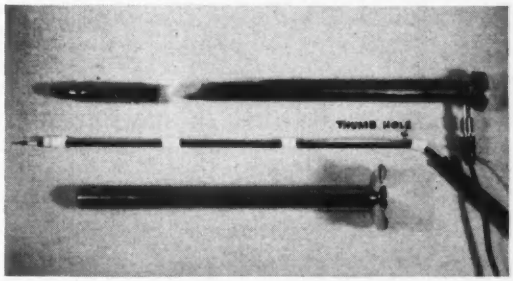
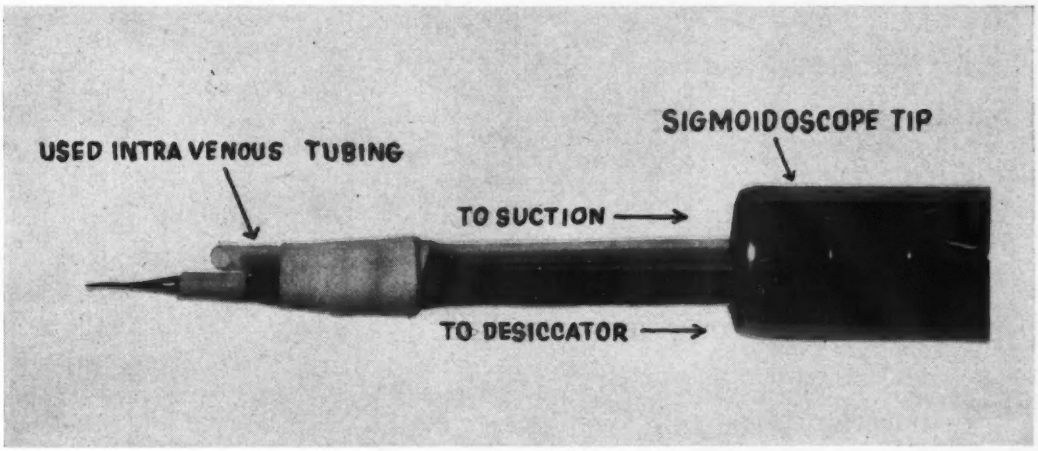


Figure 1.—*Picture at right* shows desiccating tip with plastic tube taped to it. The site of the hole in the side of the tubing for purpose of applying or interrupting suction is within reach of the surgeon's thumb. The sigmoidoscope is pictured to show relative size of the device. *Below* is a view of the tip of the device, shown extending from the end of the sigmoidoscope.



Cerebral Vascular Occlusion

Angiographic Diagnosis

STANLEY B. REICH, *M.D.*, JOSEPH LEVITIN, *M.D.*, and LELAND R. FELTON, *M.D.*, San Francisco

• **Cerebral arterial occlusion is a fairly frequent condition. We have diagnosed nine cases by cerebroangiography in the past two years, and there are many patients not given this special examination.**

Precise diagnosis has become more important as advances in therapy make prognosis more hopeful. The symptoms are various according to the location and degree of occlusion and the amount of collateral circulation.

Angiographic diagnosis is not difficult, but repeated demonstration of the block should be insisted on. This is best done with multiple exposures after a single injection of contrast medium. We use 7 cc. of 50 per cent Hypaque® and one exposure per second through the arterial, capillary and venous phases. The films should cover the entire head and neck lest an occlusion in the common carotid be overlooked. We have found the Schonander biplane apparatus very satisfactory, using films 14 inches square and exposing them in anteroposterior and lateral projections simultaneously.

WITH THE INTRODUCTION of cerebral angiography by Egaz Moniz the vessels of the brain were shown *in vivo* for the first time.[2] The many syndromes associated with vascular occlusion are now being delineated.[1,4]

Many studies have been done using single radiographic exposures after the injection of contrast media into the carotid or vertebral arteries.[3] This procedure will often demonstrate occlusions but occasionally is inconclusive because of the difficulty in timing the exposure. Also, contrast media do not mix intimately with the blood but tend to layer, giving a false impression of narrowing.

We have been struck by the number of false impressions obtained if only one of a series of films is examined. We believe that films should be taken at least one a second in each plane during the entire arterial, capillary and venous phases. It is preferable to take them biplane with simultaneous exposures. The films should be large enough to include the areas of possible stenosis from the common carotid artery to the terminal cerebral arteries.

From the Department of Radiology, Mount Zion Hospital, San Francisco 15.

Submitted November 13, 1958.

Figure 1 (Case 1).—*Left:* Lateral projection two seconds after start of injection, giving false impression of narrowing of internal carotid artery (arrow). *Center and right:* Lateral and anteroposterior projections, four seconds after start of injection, demonstrating narrowing of carotid where it leaves the foramen (double arrows). This was confirmed on several films.

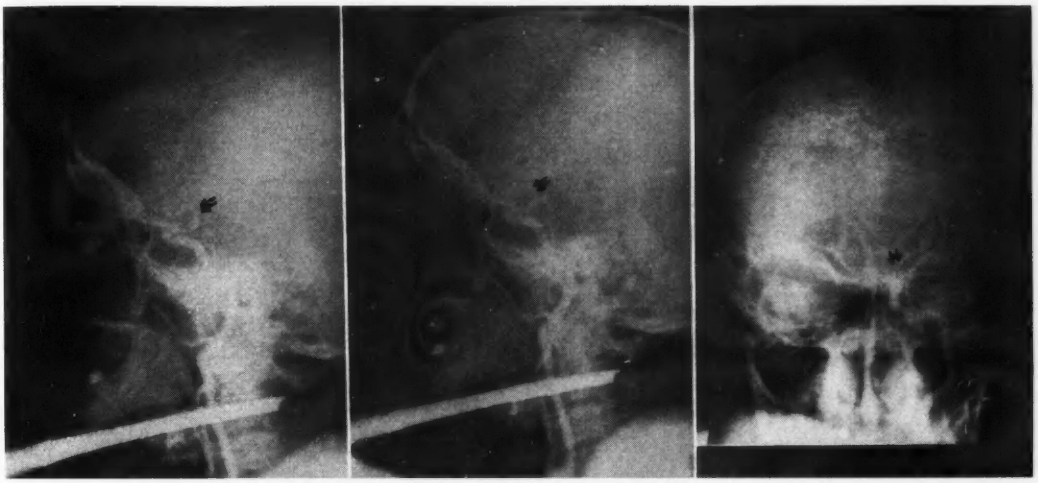


Figure 2 (Case 2).—*Left:* Lateral projection three seconds after the start of injection. *Center and right:* Lateral and anteroposterior projections six seconds after the start of injection. Note the consistent block of the left internal carotid artery at the siphon (double arrows). The ophthalmic artery is slightly dilated as a result of collateral circulation through it (single arrow).

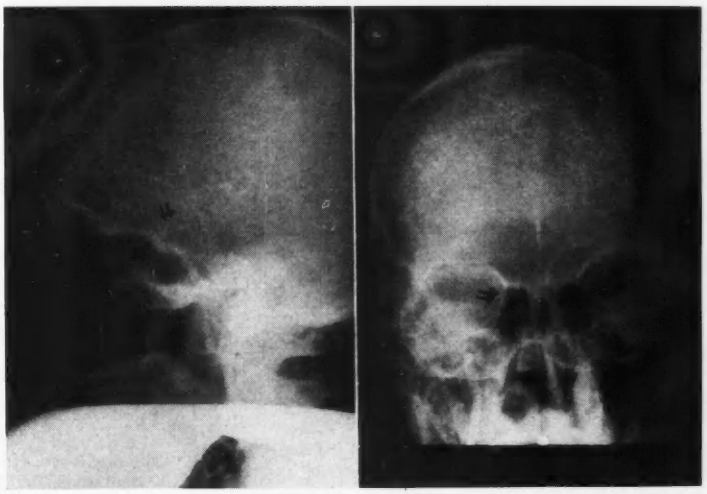


Figure 3 (Case 3).—Lateral and anteroposterior projections four seconds after the start of injection. A block of the right internal carotid artery in the siphon is shown (double arrows). This was confirmed on multiple films. The ophthalmic artery is demonstrated (single arrow).

The diagnosis of vascular occlusion or narrowing must hinge upon the repeated demonstration of lack of filling of the branch vessels. The following cases illustrate the use of the serial biplane exposures suggested above.

CASE 1. A 45-year-old white man had noticed muscular weakness starting about a year previously in the left biceps and spreading gradually to the forearm and hand. All neurological signs were on the left: facial weakness, weak upper arm (upper motor neurone) and weak dorsiflexion of the foot, together with diminished sensation in the hand (judged to be cortical) and general hyperthesia and hypalgesia on that side.

Cerebral angiography (Figure 1) showed in the first film a narrowing in the carotid artery which later filled out. In the second film a block in the right carotid siphon was seen. If only the first film had been taken this block would have been missed and diagnosis based on the first false impression.

CASE 2. The patient was a 58-year-old white man who was admitted to hospital because of papilledema of two weeks' duration. Five years previously he had had a cerebrovascular accident with right hemiparesis but had completely recovered. In the previous three months he had had sensory changes of the right side of the body, and a right homonymous field defect developed. He had trouble finding cer-

Figure 4 (Case 4).—Anteroposterior and lateral projections two seconds after the start of injection. There is a complete occlusion of the internal carotid artery just beyond the branching of the common carotid (double arrows).

tain words and had severe frontal headaches. The papilledema was demonstrated during examination.

Sensation was diminished to touch and pinprick over the whole right half of the body. There was slight right facial weakness and difficulty in convergence. Decided aphasia, motor and sensory, for both writing and speech was noted. The blood pressure was within normal limits. An electroencephalogram showed focal disturbance in the left temporoparieto-occipital region.

Cerebral angiography (Figure 2) demonstrated a consistent block of the left carotid siphon. Some collateral circulation was demonstrated through the ophthalmic artery.

CASE 3. A 78-year-old white man had been mentally confused for a month, with loss of memory and impairment of sight and hearing. He complained of increasing weakness of the left arm and leg. Upon examination, left hemiparesis, including facial weakness, was noted. The deafness was conductive, old. An encephalogram showed depressed function over the right cerebrum.

Cerebral angiography (Figure 3) showed a block of the right common carotid artery in the siphon. The ophthalmic artery was demonstrated.

CASE 4. The patient was a 70-year-old white man who suddenly became comatose and disoriented. Upon physical examination, left hemiparesis was noted.

Cerebral angiography (Figure 4) demonstrated occlusion of the right internal carotid artery just beyond the bifurcation of the common carotid artery. Endarterectomy was done, with moderate improvement.

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Medical Aspects of Commercial Jet Air Travel

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• **Jet aircraft will further enhance the medically safe and comfortable transportation of persons with disease. Experience in military medicine, substantiated by civilian commercial air travel experience, has already proved that transportation of sick or disabled persons in propeller-driven planes is essentially benign.**

Certain restrictions are necessary regarding carriage of sick passengers on commercial aircraft whether jet-propelled or of propeller type. These restrictions are primarily related to the comfort of fellow passengers and to the nonmedical environment of commercial airliners rather than to any risk of air travel *per se*.

IN THE PERIOD 1947 through 1955 deaths of passengers while in flight on American scheduled airlines ranged from seven a year to twenty.[4] Of 41,623,000 passengers carried in 1955, only 18 died in flight. The United States Air Force has now successfully evacuated over 2,000,000 patients by air. These data emphasize the medical safety of air travel.

Further documentation is derived from a study[1] of the effects of air travel in 1,777 flights of patients with cardiac and pulmonary disorders carried by the Military Air Transport Service in 1949. Only nonpressurized aircraft were used, and the flights were at altitudes of up to 10,000 feet. There were 464 flights of patients with cardiac disease. In this group only four, an incidence of less than one per cent, had an aggravation of symptoms while in flight. In 568 flights of patients with pulmonary disorders, other than tuberculosis, 2.4 per cent had mild symptoms related to their disorder. In 745 flights of patients having pulmonary tuberculosis and complications of that disease, 2.7 per cent had mild or moderate symptoms relating to their disorder. There were no deaths in the entire series, and all flights were completed successfully.

If an ill or injured passenger can be transported at all, he can be transported long distances more expeditiously, more efficiently and with a greater degree of safety and comfort by air than by any other means. This is a conclusion arrived at from experience with conventional propeller-type aircraft. Use of jet aircraft, which will reduce flight time by approximately 50 per cent and provide a smoother, less noisy, vibration-free environment in the aircraft cabin, will further enhance the safe transportation of patients with greater comfort and less fatigue. The current American-built jet transports fly above turbulent weather at altitudes of 30,000 to 40,000 feet and have a cruising speed of approximately 600 miles an hour. At cruising altitude the pressurization system maintains the cabin pressure at the equivalent of an altitude of 6,700 feet, which is less than the pressure maintained at maximum cruising altitude by some of the more advanced propeller-driven aircraft. In an emergency situation the jet cabin pressure can be brought down to the sea level pressure by a descent of the aircraft to 22,500 feet.

Submitted December 16, 1958.

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The one potential medical problem pertaining to passengers which is inherent in jet air transportation is a possible loss of pressurization while at cruising altitude. The partial pressure of oxygen at altitudes of 30,000 to 40,000 feet is not sufficient to maintain consciousness or life for more than a very short time. Great emphasis, therefore, has been placed on design features and testing of the new jet aircraft to prevent pressurization loss in flight. The more important design features in this regard are as follows:

1. The thickness and strength of the aircraft skin and structural members will withstand a much greater pressure differential than the differential of 8.6 pounds per square inch that is the standard requirement.

2. The fuselage is designed to resist tearing and to stop rips so that should openings in the fuselage occur they will not enlarge beyond an area of a few square inches and pressurization loss would be very slow.

3. The windows are small to minimize effects in case one breaks; and the possibility of leaks through a break is slight, for there are three panes of glass in each window, and either of the two outer panes alone can withstand the pressure differential.

4. The doors and hatches are sealed by pressure from within the fuselage, thus forming a plug from within outward.

5. There are three turbocompressors, each on a different engine, to supply pressure to the cabin. Any of them alone can do the job. If the mechanism for automatic cabin pressure control fails, the system can be controlled manually.

It is believed by aeronautical engineering author-

ities that the design characteristics of the jet make failure of pressurization as remote as wing failure. Even so, there are two other features for the protection of passengers against loss of pressure. One is the aircraft's ability to descend to 10,000 feet from 40,000 feet in two to three minutes, the passengers having a sensation like that of swift descent in an elevator. The descent can be begun instantly, for warning signals in the cockpit immediately alert the crew to any loss of pressure in the cabin. The second feature is oxygen masks that automatically pop out from an overhead compartment and dangle in front of each passenger's face if the cabin pressure reaches the equivalent of 12,000 feet. The masks supply a continuous flow of oxygen. Passengers always are instructed in use of the equipment before the aircraft reaches cruising altitude. Sudden anoxia could of course cause serious complications in certain persons, but the risk in this regard is probably much less than the varied risks involved in other types of transportation. The possibility of aeroembolism occurring with loss of pressurization is very slight, for passengers would be exposed to decreased atmospheric pressure for a very short time.

OTHER MEDICAL CONSIDERATIONS

As was noted previously, air travel *per se*, and particularly jet air travel, does not present a hazard to patients who are transportable. However, owing to a lack of medical facilities and trained medical personnel aboard commercial aircraft and in consideration of the comfort of fellow passengers, certain restrictions[2] are necessary:

1. A patient whose illness is objectionable to other passengers because of appearance or odor should not be permitted to travel on commercial aircraft.

2. Patients with contagious diseases should not be carried for obvious reasons.

3. A patient who, because of his illness, cannot take care of his needs should not be carried unless, by previous arrangements, a suitable medical attendant travels with him. Cabin attendants are usually too busy with routine duties to provide anything but simple emergency first aid care to an individual passenger.

4. Patients whose behavior might be upsetting or hazardous to fellow passengers should not be carried. This applies primarily to patients with severe emotional disturbances.

5. Patients with illness of a type or severity to present a serious hazard in a mild respiratory stress situation when expert medical care is not immediately available should not fly on commercial aircraft.

6. Illnesses associated with trapped gasses in body cavities, such as pneumothorax, should not fly because of gas expansion at altitude.

Problem cases should be evaluated for flight by the private physician on an individual basis. As an example, since there are no adequate facilities to perform a delivery in the air, a woman beyond the eighth month of pregnancy should not fly. Air travel is not injurious to an expectant mother or the unborn child, but a delivery in anything but medical environment can cause unneccessary problems.

Other specific examples[3,4] of medical contraindication to flight on commercial airliners are: Advanced cardiac decompensation, cyanosis, vital capacity of 50 per cent of normal or less, severe anemia (hemoglobin content less than 8.5 gm. per 100 cc.), status asthmaticus, mandibular fixation by wiring unless of the "rip cord" type to permit opening of the mouth in event of airsickness and vomiting, poorly controlled epilepsy, and myocardial infarction within six weeks of onset. Infants less than 14 days old should not be taken aloft because of instability of the respiratory mechanisms.

Airline medical directors are available for consultation, with the personal physician, on cases presenting special or difficult problems in relation to air travel.

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Oxanamide

Adjunctive Use of a New Tranquilizer in Gynecology

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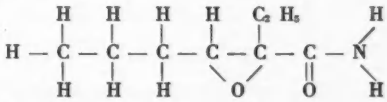
• **Oxanamide (Quiactin®) was administered to 45 patients with a wide variety of gynecologic ailments associated with nervous or emotional tension. The most common conditions with which anxiety was associated in this series were premenstrual tension and the menopause. Thirty-seven of the patients were benefited. Four of the 45 patients had mild side effects.**

THE PHARMACOLOGIC FEATURES of oxanamide (Quiactin®) were first described in 1949.[8] The compound was originally compared with pentobarbital, because in experimental animals large doses induced sleep. In rabbits the minimal hypnotic dose intravenously is approximately seven times that of pentobarbital, but the lethal dose is approximately eleven times that of pentobarbital. It was concluded that oxanamide in large doses functions as a barbiturate, except that it has a lower milligram potency and a wider margin of safety.

More recently[6] it has been found that oxanamide is an internuncial neuron blocking agent. Like the prototype of this classification of drugs, mephenesin, it attenuates polysynaptic reflex arcs (flexor and linguo-mandibular reflexes) and has no effect on monosynaptic reflexes (patellar). It is effective when given by mouth and the duration of action is longer than that of mephenesin. In appropriate doses, oxanamide causes pronounced relaxation of skeletal muscle in cats, rats, and mice. During this effect, cats remain alert and responsive to external stimuli and are content and relaxed even when held in awkward positions. Higher doses cause further relaxation of skeletal muscles and loss of locomotor function, particularly in mice and rats. It is only at these doses that conditioned avoidance responses are impaired in rats. Oxanamide has no effect on respiration except at toxic doses; and there is no evidence of effects directly on skeletal muscle, neuromuscular junction or peripheral nerves.

In mice, oxanamide protects against the convulsant and lethal effects of pentamethylenetetrazol and maximal electroshock-induced seizure, and, to a lesser extent, against the lethal effects of strychnine. The depressant effect of large doses of oxanamide can be antagonized by pentamethylenetetrazol. Oxanamide has no effect on the autonomic nervous system or on the cardiovascular system. It has no antihistaminic or antimuscarinic activity and no effect on smooth muscle of the gastrointestinal tract.

Even though oxanamide is an internuncial neuron blocking agent, it is different chemically from mephenesin and meprobamate. The structural formula is:



The clinical use of oxanamide was not described until early in 1957 when Feuss and Gragg[3] reported their experience with the use of the compound in chronic psychotic patients in a state hospital. The drug was first given to 13 "chronically irritated" patients during a 30-day test period. All these patients were employed in the hospital laundry and were receiving electroshock therapy for symptomatic control. Six of the 13 patients were improved so much that ground privileges were granted for the first time, and the amount of electroconvulsive therapy required was strikingly reduced. This preliminary study was followed by a twelve-month study in which 60 chronically psychotic female patients were treated with oxanamide in dosage of 0.8 gm. to 4.8 gm. daily. At the end of the 12-month period, four of the 60 patients were sufficiently improved to be discharged from the hospital; and fourteen others did so well that temporary visits home were permitted. Drowsiness occurred as a side effect only in patients receiving large doses.

Coats and Gray[2] administered oxanamide in standard dosage of 1.6 gm. daily (one 400 mg. tablet four times daily) to 30 chronically psychotic patients who had been resistant to previous drug therapy. Improvement in behavior, therefore, came as something of a surprise. Because of the improved behavior, treatment was continued for periods of six to eighteen months; and ultimately 10 of the 30 patients were paroled from the state hospital. No

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withdrawal symptoms, excessive drowsiness or other side effects resulted from administration of oxanamide. The number of patients in the series studied by Coats and Gray now has been increased to 410 and the period of treatment to 39 months.[1] All the patients, 390 adults and 20 children, received a standard dose of one tablet four times daily. The tranquilizing effect of oxanamide was apparent in approximately 75 per cent of this group of mentally-ill patients with chronic disorders of many years' duration. Among the children, convulsive disorders appeared to respond more favorably than behavior disorders.

The first use of oxanamide in patients not confined to an institution for the treatment of mental illness was reported[7] by an industrial psychiatrist who administered the drug to a series of 40 factory employees. It was given to these subjects in daily dosage of two to four tablets (800 to 1600 mg.) for the control of increased psychomotor activity, agitation, restlessness and tension headache. The tranquilizing effect of oxanamide was comparable with or perhaps slightly superior to that of meprobamate. Oxanamide, however, was preferred because it had no tendency to produce drowsiness. The workers were able to stay on the job, exercising their usual degree of manual dexterity and speed.

The first use of oxanamide in the office practice of internal medicine was reported by Hock.[5] He treated primarily patients with functional bowel distress, and he used oxanamide in dosage of 400 mg. three to four times daily concurrently with antispasmodic agents. In 202 cases, the drug was administered concurrently with Bentyl® (dicyclomine hydrochloride). The symptomatic response was superior to that observed previously with simple antispasmodic therapy or the concurrent administration of Bentyl with phenobarbital.

Early in 1958, Feuss and Ivanov[4] reported the satisfactory use of oxanamide in an outpatient clinic associated with a state hospital for mental illness. In this report special attention was directed to the freedom from symptoms described by patients as "dopiness, tiredness, loginess or sleepiness," which represented a substantial advantage of oxanamide therapy.

THE PRESENT STUDY

All patients reported in this study were observed in the routine office practice of obstetrics and gynecology. The author does not feel in any way qualified to render intensive psychotherapy and none was attempted except for the usual explanation of why oxanamide was being administered and what might be expected from its use. The patients were specifically instructed that hypnotic or sedative effects were not to be desired; and in several instances when these effects were noted following the usual dosage of three tablets daily (total 1,200 mg. oxanamide), the patients were instructed to reduce the dosage or to take the drug only at bedtime.

Patients with severe agitation, chronic alcoholism and pronounced depression are rarely seen in the author's practice; and since no attempt was made to treat patients obviously needing intensive psychiatric and rehabilitation therapy, none was included in this series.

The tranquilizing effect of oxanamide was frequently noticeable within two or three days, and improvement in nervous and emotional symptoms was soon evident. Great improvement in mood and in ability to concentrate and complete their usual daily chores was noted by many patients within a few days. Since the action of oxanamide is primarily subcortical, this tranquilizing effect is obtained without dulling of the sensory stimuli. Frequent expressions from the patient attesting the beneficial effects of oxanamide were that they "were more aware of their surroundings," "had more interest in life" and "were better equipped to face conditions of stress."

The relaxing effect and subsequent relief of tensions were most readily apparent in patients suffering from premenstrual tension. In these cases, the drug was usually started from two to six days before the expected date of the menses or when the symptoms of bloating, tension and headaches appeared.

Oxanamide was found to have a most useful therapeutic effect without interfering with the patient's normal daily activity. Daily observations or changes in dosage were not necessary.

In treatment of menopausal patients, a combination of oxanamide and a fat-soluble, slowly released estrogen proved ideal for relief of the agitation and emotional tension as well as of the vasomotor complaints. The menopause occurs at a time in the life of the average woman when her children are grown and have achieved a maximum state of independence of parental guidance and her husband is at the peak of his career and has diluted home interests in favor of those concerned with his business. She finds herself no longer the pivot about which her family has previously functioned. These factors, quite naturally, may lead her to a feeling of insecurity which is enhanced by her interpretation of the menopause as a difficult period which marks the end of her youthful productivity.

Coupled with these subtle but obvious changes in her environment, further stress occurs with the decrease in ovarian function during the menopause. She experiences the symptoms of estrogen deficiency,

such as menstrual, vasomotor and urinary disturbances, dyspareunia, mastalgia and fatiguability. Other symptoms which are caused in part by hormone imbalance and in part by her preexisting anxiety and tension are nervousness, irritability, insomnia, headaches, depressed libido and vague and indefinite muscle and joint pains.

In prescribing tranquilizing drugs one must bear in mind that in many cases the symptoms do not warrant continued use of them. In several cases in the present study the patients made personal adjustments in their emotional problems and the use of oxanamide was promptly discontinued.

The present study is a preliminary report which indicates that in the field of obstetrics and gynecology oxanamide is a potentially useful drug for the control of emotional disturbances that contribute to, or in some cases may even cause, a wide variety of illnesses. The results in 45 patients were as follows:

Condition with Which Emotional Disturbance Was Associated	Result, Number of Cases		
	Good	Fair	Poor
Premenstrual tension	7	4	5
Menopause	7	5	....
Postoperative	3	....	....
Sexual frustration and marital tension	1	1	1
Functional uterine bleeding	2	....	....
Dysmenorrhea	1	1	....
Pre- and postpartum	1	....	1
Insomnia	1	....	1
Tension	....	1	....
Carcinoma	1	....	....
Endometriosis	1	....	....
Total	25	12	8

The following report of a case illustrates the kind of patient who is an excellent candidate for oxanamide therapy and the kind of response to be expected from the drug:

A woman 32 years of age was first examined in the office in September, 1956. She complained of easy fatiguability, loss of weight, poor appetite, nervousness, occipital headaches and urinary frequency. She had had four pregnancies—one miscarriage and three normal children. Surgical history included mastoidectomy at the age of four, tonsillectomy in childhood and removal of a cyst on the ovary and an appendectomy in 1947. Menses had been increasingly irregular during the previous three or four months.

Upon physical examination the patient was observed to be thin, tense and nervous. The blood pressure was 132/86 mm. of mercury. No abnormality was noted in the heart and lungs. The breasts were atrophic. Upon pelvic examination a small cystocele was noted. The right ovary was slightly enlarged and tender.

A high caloric diet supplemented with iron and calcium capsules was prescribed, and the patient was advised to stop smoking. She was instructed to drink cream with each meal and to eat more regularly.

Subsequent interviews brought to light a deep-seated marital problem and difficulty in sexual adjustment. The patient admitted that she was dissatisfied with her husband sexually and had turned to a paramour. Both the patient and her husband were referred to a psychiatrist for consultation, and he diagnosed psychophysiologic genitourinary reaction and premature ejaculation in the husband. Both patient and husband were given oxanamide in dosage of one tablet (400 mg.) three times daily. In later interviews the patient expressed remorse at her previous actions and seemed to be generally more calm and adjusted. Her anxiety and nervousness had subsided. The dosage of oxanamide was increased to four tablets (1,600 mg.) daily, and both the patient and her husband later made a successful adjustment.

DISCUSSION

In this group of 45 patients treated with oxanamide, side effects were relatively uncommon. One patient complained of nausea, one of vertigo, and two of drowsiness. In all cases the reactions were mild, and the causative relationship of oxanamide to the side effects is debatable.

No evidence of toxicity, jaundice or abnormalities of the blood could be associated with oxanamide. Habituation was not a problem.

The dosage of the drug varied with the degree of emotional upset. The usual dose was one tablet (400 mg.) four times daily, but some patients needed as many as eight tablets (3,200 mg.) daily while for others two tablets a day (800 mg.) was adequate. When insomnia was associated with the tension and anxiety, increased dosage at nighttime was highly beneficial.

2015 Clarmar Way, San Jose 28.

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CLINICO-PATHOLOGICAL CONFERENCE

RICHARD S. COSBY, *M.D.*
Pasadena, Clinical Discussant

BENJAMIN E. KONWALER, *M.D.*
Long Beach, Pathologist

A 31-YEAR-OLD Caucasian male was admitted to hospital on November 24, 1950, because of scantiness of urine and swelling of the face, body and legs for one week. Previously, a physician had told him his kidneys were bad and had given him a "water shot" which caused good diuresis. However, edema had returned, and on the day before admission a pruritic rash had developed on the patient's head. There was no history of infection or other significant feature.

On admission, the patient was obese, with pronounced swelling of the face and puffiness of the eyes. The blood pressure was 134/84 mm. of mercury, the temperature 100.8°F., pulse rate 96. Basal rales were heard over both lungs, with decrease in breath sounds and dullness on percussion. The heart sounds were faint and no murmurs were audible; the second pulmonic was greater than the second aortic sound. A rash of small papules was present over the scalp and the lower parts of the legs. Venous pressure was 260 mm., circulation time 21 seconds.

Leukocytes numbered 7,000 to 11,900 per cu. mm. with a normal differential; and erythrocytes, 5.4 to 5.86 million per cu. mm.; hemoglobin was estimated at 16 to 17.3 gm. per 100 cc. The sedimentation rate was 1 mm. in 1 hour. The urine contained at the most 1 plus albumin, few leukocytes; the pH was 5 to 6. The serum albumin was 3.4 gm., the globulin 1.5 gm., and the urea nitrogen 11 mg. per 100 cc. Carbon dioxide was estimated at 33.9 mEq. per liter, calcium at 5 mEq., chlorides at 98 mEq., and total base at 150 mEq. Urea clearance was 74 per cent of normal. Electrocardiographic findings were compatible with right ventricular hypertrophy. Roentgen studies of the chest showed cardiac enlargement compatible with mitral valve disease due to rheumatic fever or Lutembacher's complex. On fluoroscopy, all chambers appeared enlarged.

The patient was kept at bed rest, was given diuretics and was restricted to a low-salt diet. The edema was almost completely relieved, and the patient was discharged January 8, 1951, without the cause of heart disease being determined.

SECOND ADMISSION

He was next admitted June 13, 1953, because of persistent edema, abdominal swelling and shortness of breath. He was cyanotic but not in acute distress. Blood pressure and pulse were normal. Rales were heard in the lung bases. The heart findings were the same as on the previous hospitalization. Ascites was pronounced and the liver was palpated 3 fingerbreadths below the costal margin. There was 3-plus edema from the knees down.

Hemoglobin then was 20.4 gm. per 100 cc., the hematocrit determination 75 and erythrocytes numbered 6.46 million per cu. mm. Roentgen films again showed cardiac enlargement consistent with mitral valvular disease, and pulmonary vascular markings were prominent. Pulmonary vital capacity, which should have been about 4,400 cc., was 2,986 cc. Inspiratory reserve was 1,410 cc., resting tidal volume 580 cc., expiratory reserve 995 cc. The maximal breathing capacity, which should have been 143.2 liters per minute, was 98.72 liters. After moderate inspiration the patient could hold his breath for 31 seconds.

Presented at the 87th Annual Session of the California Medical Association, Los Angeles, April 27 to 30, 1958.

Arterial blood findings were compared in the basal state and after five minutes' intermittent positive pressure breathing (IPPB) with oxygen. The result:

	Basal	After Oxygen IPPB
Oxygen content (volumes per cent)	20.04	26.83
(Per cent of saturation)	73.3	98.5
Oxygen capacity (volumes per cent)	27.47	27.50

Low-salt diet, bed rest and diuretic treatment were again followed by diuresis. The patient was digitalized. At this time the possibility of Eisenmenger complex was considered. Cardiac catheterization on July 6 revealed high pressure in the right ventricle. Pressure in the pulmonary artery was 58/38 mm. of mercury; in the right ventricle, 27/7 and 56/10 mm. in the right auricle, 9 mm. The patient was discharged August 11 and digitalis therapy was continued.

THIRD ADMISSION

June 6, 1954, the patient was readmitted with the same symptoms. Polycythemia was again noted, although the leukocyte count was normal and platelets were estimated at 160,000. A loud harsh systolic murmur was heard along the left sternal border at the second and third intercostal spaces; this murmur faded as the patient improved.

On June 24 the vital capacity (estimated normal, 4,650 cc.) was 2,074. Inspiratory capacity was 1,866 cc., tidal volume 290 cc., expiratory residual capacity, 207 cc. Maximum breathing capacity was 50.5 cc. per minute although the normal was estimated at 150 cc. Residual air was 925 cc. Breath-holding time was 31 seconds.

Arterial oxygen content in the basal state was estimated at 39.8 per cent of saturation; after 1½ minutes' exercise, 61.2 per cent; after 3 minutes' oxygen inhalation, 93 per cent; and 5 minutes later, 70 per cent.

Angiocardiography on August 5 disclosed distention of the superior vena cava and enlargement of the right auricle and right ventricle. The pulmonary arteries were quite large, particularly the right. The left side was not well visualized but the left atrium seemed to be enlarged.

The possibility of amyloidosis was not supported by gingival biopsy findings on August 12. Plasma volume was estimated August 25 at 51 ml. per kilogram of body weight, blood volume at 165 ml. per kilogram.

Cardiac catheterization on September 9 indicated pressure in the pulmonary artery to be 79/49 mm. and 64/35 mm.; in the right ventricle, 41/12 mm.

The patient responded slowly but adequately to the same treatment he had received before. The final impression then was of a primary pulmonary disorder; shunts, diffusion defect, primary pulmonary hypertension and Hamman-Rich syndrome were considered. The patient was discharged October 9.

FOURTH ADMISSION

Only a few months later, on January 19, 1955, the patient was again admitted because of pronounced edema of the legs and abdomen, a 30-pound gain in weight, and exertional dyspnea. Roentgen films showed further cardiac enlargement, particularly of the right ventricle, and electrocardiograms indicated serious right ventricular hypertrophy with strain. Electroencephalograms disclosed a diffuse slow dysrhythmia that could not be attributed to hypoventilation.

Urine specific gravity was still normal, urea clearance was 88 per cent of average maximum, urea nitrogen 14 mg. per 100 cc. A phenolsulfonphthalein test resulted in 45 per cent excretion in 15 minutes.

On March 15, Dr. H. L. Motley made extensive pulmonary function studies indicating that lung volume was normal. Gross inadequacy of alveolar ventilation was evident, however, from measurements of arterial blood and of pulmonary ventilation. Voluntary deep fast breathing raised the arterial blood oxygen content to normal. This contrasted with the observation that the patient seemed never to breathe deeply; in fact, he appeared not to be breathing at all.

As on previous admissions, the same therapy produced improvement and the patient was discharged on June 3 with the diagnosis of pulmonary hypertension with cor pulmonale and hypoventilation of pulmonary alveoli of undetermined cause.

FIFTH ADMISSION

The patient did well for a year. Two months before his final admission on June 30, 1956, he noted ankle swelling and shortness of breath which did not subside on diuresis. The day before admission he had felt a squeezing pain in the chest that radiated to the neck and lasted about two minutes. The pain returned briefly, five or six hours later. On admission he was moderately cyanotic and had slow, shallow respiration. Crepitant rales were heard throughout the lungs. A grade two systolic murmur was heard at the apex, and a precordial friction rub was present. The blood pressure was 110/80, the pulse rate 96. The liver was enlarged but ascites was not present. There was 2 plus pitting edema of the lower extremities. Polycythemia was found to be present. Urine contained 1 plus albumin, the specific gravity being 1.010. The blood urea nitrogen was 32 mg. per 100 cc. A test for lupus erythematosus cells gave negative result.

Ten days after admission, the blood urea nitrogen had increased to 102 mg. per 100 cc.; the patient was hypotensive and anuric for two days. Roentgen films showed a huge heart, and fluoroscopy disclosed no pulsations. The patient did not respond to diuretics or to phlebotomy. A rocking bed, intermittent positive pressure with oxygen, and a respirator were used without relieving the respiratory difficulty. Large amounts of Levophed® were necessary to maintain the blood pressure. The patient continued to deteriorate and died on August 8.

CLINICIAN'S DISCUSSION

DR. RICHARD S. COSBY: On the first admission of this patient we have little information to indicate a definite diagnosis of cardiac or pulmonary disease. It can only be speculated that the slight increase in erythrocyte count and hemoglobin and the cardiac enlargement without cardiac murmur, and the right ventricular hypertrophy and failure strongly implicate the right heart. Obviously, we are dealing with a most unusual form of heart disease—if it is heart disease—which leads to death within five years in a 31-year-old male.

On the second admission we begin to have some idea of the nature of the problem, since polycythemia is well advanced and right heart failure is more severe. Again, no heart murmurs are heard. The lung volume findings at this stage are not very revealing. The lung volume—almost 3 liters—is, according to my own calculation for a 5-foot, 3-inch male, almost 77 per cent of normal. The progressive lung volume reduction thereafter is no more than what might be due to encroachment of the enlarging heart. Any patient with an enlarged heart will have some decrease in lung volume. The arterial oxygen studies are helpful and begin to point out the nature of the defect. Arterial desaturation is pronounced, but the oxygen uptake is increased strongly by intermittent positive-pressure breathing.

The notation at this point, "IPPB with oxygen," presumably means "with 30 per cent oxygen," not 100 per cent oxygen. The test is usually given to demonstrate the increased oxygen uptake that can be produced by improving alveolar ventilation. If that is the case here, we can conclude that some factor was strongly decreasing alveolar ventilation. Since no test was made at this time with 100 per cent oxygen, we are left in the dark as to whether a small arteriovenous shunt was present. With 100 per cent oxygen, any degree of desaturation would denote such a shunt. Dr. Motley has shown that 100 per cent oxygen on exercise is the best test of tiny venoarterial shunts.

We're not informed at this time of diffusing capacity of the lungs or the problem of increased residual air; but we are sure that alveolar ventilation was diminished.

The next step was catheterization of the right heart. We might inquire what cardiac diagnosis might be considered in a patient with pronounced arterial desaturation, cardiac enlargement (mainly right ventricular), and no murmurs. Certainly many forms of congenital heart disease can be present without murmurs—tetralogy of Fallot, Eisenmenger complex, atrial septal defect, even with serious disability; but this is a rarity—quite a rarity. The Eisenmenger complex, however, has some place in the differential diagnosis; first, because in this condition no murmurs are present, and secondly because polycythemia, dyspnea and disability come on somewhat late in life.

In all forms of congenital heart disease, cyanosis is due to a right-left shunt, and cardiac failure may accentuate it. It this case, though, the cyanosis was relieved by positive-pressure breathing; it is therefore most unlikely that the cyanosis is due to a right-left shunt, and therefore unlikely, too, that it is due to congenital heart disease. Further evidence is the relatively low right ventricular pressure, which is above normal but certainly not as high as in Eisenmenger's complex, where there usually is some degree of overriding of the aorta and the right ventricular pressure should be equal to the systemic.

The third admission disclosed, most importantly, a sudden decrease in tidal volume, a normal ratio of residual air to total capacity and serious decrease in arterial oxygen uptake. Furthermore, there was an amazing jump of 20 per cent in arterial oxygen uptake on exercise. This helps again in ruling out shunt as a cause of cyanosis and suggests a noncardiac cause—most probably impairment of alveolar ventilation, which is improved by exercise. Angiocardiography was done to rule out completely the possibility of right-left shunt, and I think at this point we can turn our thoughts from congenital heart disease.

Pulmonary pressure has now increased but certainly can't be as high as reported. There appears to be some mistake, because the blood is running uphill, from right ventricle to pulmonary artery, and this doesn't happen. It can run downhill, without the presence of pulmonic stenosis, but you can't have a higher pressure in the pulmonary artery than in the right ventricle.

Apparently positive-pressure breathing was not necessary to complete aeration of arterial blood, since voluntary deep breathing raised the uptake to normal. This finding suggests that there is alveolar hypoventilation but that it is not local and in fact may not be pulmonary at all. It is apparently general throughout the lung, and perhaps the cause resides in one of the neural mechanisms underlying respira-

tion. It is probably pertinent here that the second set of respiratory measurements showed only half the tidal volume of the first, though there was no gross figure for total alveolar ventilation.

Next we find the striking observation that the patient did not appear to be breathing. It's very easy to be mistaken about this. The rate of respiration is easily mistaken unless you count it, and the depth of ventilation, too, can be misjudged, especially in an obese person like this patient. Nevertheless, the unusual observation is made that practically no evidence of breathing was noted.

To summarize the pulmonary findings, then, the arterial oxygen content was low while lung volume was perfectly normal. Neither venoarterial shunt nor diffusion defect has been shown to be present. The outstanding observation is that some factor is diminishing total ventilation. The possibility that inadequate ventilation may be the underlying defect might have been suspected at the first admission, when the plasma bicarbonate was first noted to be high.

Three causes of inadequate total ventilation come to mind: The first is structural and related to the mechanics of ventilation. Spinal cord lesions, myasthenia gravis, thoracic deformity or scleroderma may so limit the thoracic cage that respiratory failure may ensue from decrease in ventilation. We have no evidence of any of these conditions here. The second possibility is obesity. Hackney and others have shown the importance of obesity in diminished ventilation, polycythemia, respiratory acidosis and heart failure. But this patient is only moderately obese; most of Hackney's patients weighed more than 250 pounds. Furthermore, the patient does not appear to be breathing. While an obese patient may not seem to breathe if one watches only the chest cage, certainly breathing can be noted by watching the abdomen. For these reasons, one is forced to consider that the apnea is probably of central origin. We have no evidence, though, of encephalitis, brain tumor or degenerative lesion of intracranial origin. Nevertheless, because of the unusual normality of pulmonary function on normal respiratory movement, we are left with little alternative. So I'm going to be forced, then, to conclude that this patient has cor pulmonale secondary to diminished alveolar ventilation; the cause, most probably, in the central nervous system or, less likely, in obesity.

PATHOLOGIST'S REPORT

DR. BENJAMIN E. KONWALER: Ordinarily in clinical pathologic conferences, the clinician feels that he is in a vulnerable position while the pathologist relaxes comfortably. However, in presenting the necropsy findings and clinical pathologic correlation in a case such as this, the pathologist also must feel insecure since his conclusions cannot, for certain, be based upon the morphologic findings.

First, let me say that it is my feeling that this case conforms to those cases which have recently been described in the literature as "heart failure due to extreme obesity," or "obesity heart disease" and have been given the rather startling eponym "Pickwickian syndrome" by Burwell and his group at Harvard Medical School. This eponym touched off a minor literary feud in Boston; and the *New England Journal of Medicine,* in an editorial, was quick to point out that Pickwick, indeed, had none of the important clinical findings associated with this entity but that "an association with Dickens' description of fat Joe as it appeared in the Posthumous Papers of the Pickwick Club would be most appropriate."

A complete necropsy was performed in this case, including examination of the brain, spinal cord, peripheral nerves and muscles. We particularly wished to make sure there were no gross or microscopic findings in the central nervous system to account for this patient's hypoventilation. We found no morphologic changes that could be considered as causing the hypoventilation although there was congestion of the blood vessels and occasionally a small ring hemorrhage was seen. However, the adjacent neurones were well preserved and it was felt that the small hemorrhages were terminal events.

The major pathologic findings were found in the cardiorespiratory system with minor microscopic findings in the liver.

At necropsy, the findings were the classical ones of right sided heart failure with subcutaneous puffing edema in dependent areas, with bilateral pleural effusion of about 600 cc., with pulmonary edema, with ascites of about 800 cc. and with some congestion of liver, spleen, kidneys and blood vessels.

The left lung weighed 600 gm. and the right lung 800 gm. Scattered throughout both lungs, but especially at the bases, were a number of small infarcts. These were firm, dark red, airless nodules that extended to the pleural surface. They were relatively recent and vessels containing organized thrombi could be seen close to the infarcted areas. Another significant finding was the presence of rather pronounced pulmonary atherosclerosis in the larger vessels, but this did not extend into the smaller segmental branches. There was no emphysema noted and no pulmonary fibrosis.

The heart weighed 600 gm. There was striking right ventricular hypertrophy, the right ventricular wall measuring up to 12 mm. in thickness—an unusual amount of hypertrophy and considerably more than we have seen in cases of cor pulmonale. In fact, it was the greatest we ever saw, except in a case of primary amyloidosis of the heart. The left ventricle

was 15 mm. thick. Thus, the increased weight of the heart was primarily due to right ventricular hypertrophy. The coronary vessels showed only slight to moderate atherosclerosis. The ring of the pulmonic valve was somewhat dilated, measuring 8.5 cm. There was no evidence of any intracardiac shunt.

The spleen at 150 gm. was only slightly above the average weight. The liver weighed 1,500 gm. but the cut surface had a nutmeg appearance such as is seen in congestion. Microscopic examination showed frequent bile thrombi in the bile capillaries such as is seen in some cases of right sided failure (about 3 to 5 per cent).

The kidneys were definitely heavier than normal and weighed 500 grams together. This increased weight was apparently primarily due to congestion, for the glomerular capillaries were distended as were all the vascular channels. Many glomeruli showed granular material in Bowman's capsular space, and some tubules contained casts. It was felt that the renal findings were compatible with right sided failure.

The pathologic findings can be summarized as showing cardiac hypertrophy, mainly right sided, with cor pulmonale and right sided failure. No primary basis was found morphologically for the cardiac hypertrophy. There was no emphysema and no pulmonary fibrosis.

In the recent literature on this entity, three reports with autopsy observations have appeared. In all of them necropsy showed cardiac hypertrophy and cor pulmonale. One report showed findings similar to those in the present case, with cor pulmonale, pulmonary arteriosclerosis, recent pulmonary infarcts and absence of emphysema and pulmonary fibrosis. In all the cases there was secondary polycythemia. The presence of polycythemia in obesity is well known, and it may play a part in the conditions that develop. Seide, in his case report, has a chart showing the pathogenesis in these cases. In some of the reported cases there was a complete reversal of findings following sufficient weight reduction. However, some factor other than obesity must also be involved, since this syndrome develops in only a small number of obese persons.

For Your Patients—

Certainly, let's talk about fees...

In this day and age I think we all are faced with many similar financial problems. Though our incomes may be derived from different sources, our expenditures, for the most part, consist of food, clothing, shelter and other expenses including medical care.

As your personal physician, you realize my income is solely from my fees; fees which I believe to be entirely reasonable. However, should you ever have any financial worries, I am most sincere when I say that *I invite you to discuss frankly with me any questions regarding my services or my fees. The best medical care is based on a friendly, mutual understanding between doctor and patient.*

You've probably noticed that I have a plaque in my office which carries this identical message *to all my patients.* I mean it—

Sincerely,

_____, M.D.

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Volvulus of the Cecum Occurring After Operation—Notes on Additional Etiological Factors and Therapy

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VOLVULUS OF THE CECUM is a rare form of intestinal obstruction; it has been reported as the cause in from 0.1 per cent to 1.4 per cent of cases of obstruction.[1,3,4,5] The cause has been ascribed to excessively long right colon mesentery,[6] often long enough to permit free movement of the cecum and ascending colon to the mid-line or the left abdomen. In the obstructed cases, the rotation is always described as clockwise, with a fixed point (hepatic flexure or band adhesions) being the fulcrum of rotation.[7] Two possible additional etiological factors are suggested in the following case. Of interest also was the roentgen demonstration of the fulcral point of volvulus near the hepatic flexure.

REPORT OF A CASE

A 46-year-old white woman was examined because of vague "sticking pains" in the left side of the abdomen for the preceding two months and swelling of the lower extremities for five years. The patient had had cesarean section because of placenta previa at age 29. Upon physical examination a tender left upper abdominal mass was palpated and edema of the legs was noted. No abnormalities were noted in the urine and results of blood examination were within normal limits except that 5 per cent of the leukocytes were eosinophils. The sedimentation rate was 22 mm. in one hour (Wintrobe). Intravenous urography showed left hydronephrosis, which was confirmed by retrograde study. The condition was attributed to narrowing of the pyeloureteral junction, possibly associated with aberrant vessels. No intraperitoneal abnormality was noted during these studies. At operation with the patient in right lateral recumbency and a high kidney lift under the right flank, a position that was maintained for two and a half hours, the vessels were removed and pyeloplasty was done. The peritoneal cavity was not opened.

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The progress of the patient was normal for the first 48 hours after operation with normal peristalsis and only slight distention, but on the third postoperative day distention was noted in the lower abdomen. Bethanecol (Urecholine) 5 mg. subcutaneously was given once, then 1:4000 neostigmine, intramuscularly, 3 cc. given five times in 48 hours, and peristalsis became intermittent and painful. On the fourth day, distention had increased, but the temperature was 98.6° and the pulse rate 84. On the fifth and sixth days flatus and stool were passed after rectal irrigations, but there was still pronounced distention and cramping pain continued at intervals. Fluids were being administered parenterally and the urine output averaged 1,400 cc. a day. Vomiting did not occur. On the sixth day leukocytes numbered 10,500 per cu. mm., with 72 per cent polymorphonuclear cells, 9 per cent of them stab form. The total eosinophil count was 100 per cu. mm. Serum albumin was 3.4 gm. and globulin 1.9 per 100 cc. The nonprotein nitrogen content was 25 mg. per 100 cc. On the seventh day because of extreme meteorism, abdominal x-ray examination was carried out and the cecum was observed to be occupying the entire left side of the abdomen. A barium enema was given and the barium progressed to the upper ascending colon, where what appeared to be folds at a point of twist were diagnosed by the radiologist as volvulus of the cecum and ascending colon.

Operation was done immediately. The cecum and ascending colon, enormously distended, lay in the left lower abdomen and a retrocecal appendix lay against the left anterior parietes. The cecal wall, which was gangrenous, was perforated while attempt was being made to find a proper area for decompression with a suction trocar. Fecal spill of 2 to 3 ounces was removed on laparotomy sponges and by subsequent irrigation. Culture and sensitivity tests showed E. coli, and nonhemolytic streptococcus, sensitive to tetracycline but not to penicillin and streptomycin. This information was most valuable in aftercare. After evacuation and detorsion, the point of fulcrum for the volvulus was found near the hepatic flexure, the bowel there being held relatively immobile by omental bands attached to the old scar of cesarean section. The bowel had rotated clockwise about this structure at least 180°. Right colectomy with ileotransverse colostomy was done. Fifteen hundred cubic centimeters of banked blood

TABLE 1.—*Laboratory Data Indicating Response to Therapy After Operation to Free Volvulus of the Cecum*

	Postoperative Day			
	First	Second	Third	Fourth
Albumin per 100 cc.	3.5	4.0	5.3	....
Globulin per 100 cc.	1.9	1.2	1.4	....
Nonprotein nitrogen per 100 cc.	38	24	....	....
Carbon dioxide combining power (mEq. per liter)	83 (AM) / 73 (PM)	63	53	....
Packed cell volume (per cent)	46	42	....	....
Potassium (mEq. per liter)	2.4	....	....	3.6

was administered during operation. A Harris tube was manipulated into the second portion of the duodenum in order to maintain decompression; 20 hours after operation it had reached the first part of the jejunum.

Postoperative therapy included use of salt-poor serum albumin, vitamins, potassium chloride and limitation of salt. Massive doses of penicillin and dihydrostreptomycin given in the first 36 hours after operation were discontinued and parenteral terramycin was substituted when sensitivity tests were completed. The patient remained asymptomatic after discharge from the hospital with excellent alimentary and urinary function, including return of the left kidney to normal and relief of former constipation.

This case has important etiological, diagnostic and therapeutic connotations. In addition to an exceptionally long right mesocolon with fixation at hepatic flexure, and an omental adhesion, the upward and inward pressure of the kidney lift for two and one-half hours, plus ileus which may follow any abdominal or retroperitoneal operation, caused further displacement of the mobile structure.

Hinshaw[2] said that no similar case was found in a recent review of colonic volvulus at a large metropolitan county hospital. Obviously a competent ileocecal valve contributed to the picture. Whether the administration of a peristaltigenic agent (neostigmine) contributed to the rotation and torsion is conjectural. The clinician must be alert to the possibility of such a postoperative complication in any case, whether the operation was abdominal or remote from the abdomen. A plain x-ray film of the abdomen and barium enema study are of value in any inadequately explained case of postoperative distention.

SUMMARY

Volvulus of the cecum with complete intestinal obstruction is a rare but fatal disease. It is due to an unusually mobile cecum and ascending colon with a normally placed, but exceptionally long, mesentary and some point of fixture about which clockwise rotation of the bowel may occur. The condition may also occur without complete obstruction.

Additional etiological or inducing factors are suggested, namely: (1) Mechanical pressure on the right flank; (2) postoperative ileus with initial displacement of loops of bowel by distention.

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Dermatomyositis Treated with Sodium Ethylenediamine-tetra-acetate

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DERMATOMYOSITIS is a rare disease, but it has been quite well covered in medical publications. The present case is reported not as a rarity but because of the apparent benefits of a therapeutic agent which seems to bring up questions related to mineral metabolism in this disease.

REPORT OF A CASE

The patient, a 48-year-old, white, married woman, was first observed in December 1954. Two years previously she had first noticed aching of the hands. A year after that the hands became more uncomfortable and stiff, and she also had aching of the feet and back. These symptoms gradually became worse, and she had pains in most of her joints at one time or another, although none of the joints was swollen except for slight enlargement of the metacarpophalangeals. In cold weather the aching in the hands was worse and they would become pale and "tingle." The patient also noted weakness of the hands and arms.

The patient appeared well in general. The face, neck and upper chest were slightly flushed. No abnormality was noted in the heart or lungs. The blood pressure was 140/86 mm. of mercury. Results of abdominal, pelvic and rectal examinations were within normal limits. Brachial and radial pulses

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were normal. The metacarpophalangeal joints were slightly enlarged but not red or tender. The skin of the hands and wrists was pale and tight and felt cold to the touch. If the hands were held dependent they showed excessive rubor. The patient could not completely make a fist owing both to the tightness of the skin and limited motion of the joints. The pedal pulses were good but the feet felt cold, and there were mildly exaggerated color changes of the feet on elevation and dependence.

The sedimentation rate was 41 mm. in one hour (Wintrobe). The blood cell content, the plasma protein-bound iodine content and results of urinalysis were all within normal limits and no abnormalities were observed in roentgenographic and fluoroscopic examination of the chest.

The patient was considered to have atypical rheumatoid arthritis complicated by Raynaud's phenomenon, nervous tension and beginning menopause. She was advised to keep her extremities warm, and administration of estrogens, papavarine and salicylates was begun. The peripheral vascular symptoms were improved but there was no other apparent benefit. A course of phenylbutazone brought no improvement. Intramuscular gold therapy was then used without benefit. In fact the symptoms were getting worse, and the patient was also having considerable pain in the shoulders and hips.

In July 1955 atrophy of the small muscles of the hands was evident, and a diagnosis of dermatomyositis was considered. A biopsy specimen was removed from one of these muscles and the pathologist reported "small focal areas of cellular infiltrate between muscle fibers, loss of cross striation in some fibers and a slight increase in muscle cell nuclei."

Results of laboratory work done in August 1955 showed the bone marrow to be normal, two negative reactions to lupus erythematosus cell tests, skull and chest radiographically normal, no abnormality in roentgen examination of the gastrointestinal tract, stools negative for ova and parasites, urinalysis negative for Bence-Jones protein, a negative serum C reactive protein test, and serum uric acid content within normal limits. X-rays of the hands showed "slight deossification." Urinary excretion of creatine in 24 hours was 925 mg. (normal up to 400 mg. per 24 hours for women). Biopsy of a neck muscle showed changes much the same as in the previous biopsy, except that a perivascular lymphocytic infiltration was also seen. A definite diagnosis of dermatomyositis was made.

In August 1955 intramuscular administration of corticotropin (ACTH) was begun. Supplemental potassium chloride was also administered. The corticotropin definitely lessened the pain, but the patient still required analgesia. Improvement in the manifestations of Raynaud's phenomenon was noted. Testosterone was tried for a while but seemed to have no beneficial effect and was discontinued without apparent detriment.

In December 1955 it was evident, despite facial edema, that there was atrophy of some of the facial muscles. Further atrophy of the hand muscles was also noted, and the lower arm and shoulder girdle muscles had lost substance. This was true to less degree of the muscles of the hips and calves, which were somewhat weak and stiff.

In December 1955 hydrocortisone, 30 mg. a day, was added and there was considerable lessening of the pain. Edema of the face and legs, however, increased despite restriction of sodium intake to 300 mg. a day and occasional administration of mercurial diuretics.

In May 1956 the pains became severe again and the hands were so stiff they could hardly be used. Furthermore the patient had a great deal of general malaise and weakness, and was very depressed. When the author's attention was drawn to reports of benefit in cases of dermatomyositis with calcinosis from the use of a calcium chelating agent, sodium ethylenediamine-tetra-acetate* (Na-EDTA), it was decided to try this agent even though there was no evidence of calcinosis in the present case.

The patient was given a course of Na-EDTA in the hospital, consisting of 2 gm. dissolved in 500 cc. of 5 per cent glucose in water administered slowly intravenously (four hours) once a day for six days. Corticotropin and hydrocortisone were continued. Serum calcium at the time of admittance to hospital was 10.3 mg. per 100 cc. and the serum inorganic phosphate was 4.0 mg. per 100 cc. These values showed no significant change during treatment with Na-EDTA. The 24-hour urinary excretion of calcium was 113 mg. before treatment and was 155 mg. during treatment.

The patient had improved subjectively to a considerable degree by the time she left the hospital, and the motion of her hands and the stiffness of other involved muscles were definitely improved objectively. The skin of the hands felt softer and was considerably looser. After the patient left the hospital, the dosage of corticotropin was reduced to 40 units every other day and of hydrocortisone to 20 mg. a day. Edema decreased, the body weight declining 10 pounds.

In November 1956 the patient had considerable pain in the legs, and her hands felt weak, stiff and sore. Her face was round and finely hirsute. A definite "buffalo hump" was noted. Atrophy of the facial muscles had not progressed. The skin of the hands was still fairly loose but there was atrophy of the small muscles and tapering fingers, and the patient could not quite make a fist. The calves were slightly atrophic and tender, the knees were slightly swollen and there was mild edema at the ankles. At this time hydrocortisone was discontinued and prednisolone was given, 2.5 mg. three times a day. No difference in the symptoms was noted but the body weight again decreased 10 pounds.

In May 1957 the patient began to have a little dysphagia, and a roentgenographic examination with barium swallow showed slight dilatation of

*Distributed as Sodium Versenate® by Riker Laboratories, Los Angeles. Also called ethylene-bis-iminodiacetic acid, and Sequestrene®.

the lower two-thirds of the esophagus and some delay in passage of the meal. Another course of Na-EDTA was given and again there was subjective and objective improvement. Since then she has had two more courses of Na-EDTA and has been able to get along on 40 units of corticotropin every third day and prednisolone 2.5 mg. twice a day.

In April 1958 a complete examination was carried out. Slight hoarseness and some tenderness of some intercostal muscles had developed and atrophy of all the previously involved muscles was evident, and in addition there was also atrophy of the deltoid and interscapular muscles. The "buffalo hump" was barely evident and no edema of the legs was discernible. An electrocardiogram was within normal limits and no abnormalities were noted in x-ray films of the chest and skull. X-ray films of the lumbar spine showed only mild degenerative changes. In the hands there was slight narrowing of the interphalangeal joint spaces, but only slight loss of mineral content of the bones was evident. Results of blood cell count and urinalysis were within normal limits. The sedimentation rate (Wintrobe) was 40 mm. in one hour.

DISCUSSION

Although some investigators have expressed doubt that dermatomyositis is a single clinical entity,[12] the best definition at the present is the broad one offered by Domzalski:[9] "Dermatomyositis is a collagen disease in which nonsuppurative polymyositis with creatinuria is the distinguishing characteristic."

In the past, treatment of dermatomyositis has included use of vitamins, vaccines, vasodilators, analgesics, neostigmine, testosterone and physical therapy. There were no consistent benefits from these agents. In recent years corticotropin and adrenal cortical steroids have been used. In some cases the results are dramatic, and at times apparently life-saving.[4] In a report on one of the larger series it was stated that a little fewer than half of the patients were benefited, and about one-third of those benefited obtained permanent remission.[4] It seemed to McElligott[15] that these agents are most likely of benefit to adult patients with acute disease.

The cause of dermatomyositis is unknown. The most common theories are that it comes about from sensitivity to an antigen, from infection, from endocrine abnormalities, from vasomotor disturbances, from vitamin deficiency, from sensitivity to light or from disorders of metabolism of hyaluronic acid or hyaluronadase.[8,16,18,19] Recently some investigators have conjectured that neoplasms may play an etiologic part. They have postulated that the catabolic products of the neoplasm act as an allergen or toxin which triggers the disease.[8]

The apparent benefit from the calcium chelating agent in the present case brings up consideration of the possibility that calcium metabolism is involved. As far as the author knows this has not been considered in dermatomyositis, although in scleroderma it has been suggested that hyperparathyroidism is a cause of that disease.[2] It is not suggested here that hyperparathyroidism is a cause of dermatomyositis but that an abnormality of mineral metabolism in the tissues may be an etiological factor.

Ethylenediamine-tetra-acetic acid (EDTA) combines with metallic ions in vitro and in vivo to form cyclic complexes which are water-soluble but virtually undissociated. On intravenous injection the sodium salt of this acid (Na-EDTA) binds a portion of the ionized plasma calcium. Rapid infusion will produce a lowering of the plasma calcium level,[17,20] whereas slow infusion in persons with normal levels of plasma calcium will not.[5,11] The resultant bound plasma calcium is inert metabolically, and is rapidly replaced by calcium from the tissues, probably from the bones.[21] (Clarke and co-workers[5] expressed belief that the replacement came from areas of metastatic calcium in the abnormal patients they studied.) The soluble Ca-EDTA is excreted by the kidneys, apparently mainly within the first day. Studies with Na-EDTA and calcium[45] showed a tenfold increase in excretion of calcium in the urine in the first 24 hours.[1] Some observers have noted that the in vivo action of EDTA persists for a long time after use of it is discontinued.[6]

In many of the reported cases large doses and prolonged courses of treatment were used without apparent toxicity. However, EDTA is a potentially dangerous substance, and mild and serious toxic reactions have been reported. At times skin or mucous membrane reactions or nausea have been severe enough to necessitate stopping treatment with it. Local discomfort in the arm in which the infusion is given is common but can usually be controlled by slowing the rate of infusion. Thrombophlebitis in the vein used for infusion occurs sometimes and has led to discouragement in the use of the agent by some.[14] The more severe reactions include death with hypocalcemia and tetany from a too rapid rate of infusion. This reaction can be avoided by using care in the dose and rate of the intravenous flow. Three cases have been reported of death in patients being treated for hypercalcemia.[3,10,20] In these cases rather large doses were given fairly rapidly. At autopsy severe renal tubular necrosis and widespread granulation in the cells of the reticuloendothelial system were noted. A lowering of prothrombin levels in some cases to 50 per cent of normal has also been reported.[10,11] This has nothing to do with the plasma calcium levels. It has been postulated that the renal tubular lesions are due to calcium being freed in the more acid urine of the distal tubules. Hence it is advisable when EDTA is being used to try to keep the urine alkaline and to observe the urine frequently for evidence of hematuria. Also prothrombin levels should be determined often, probably daily, during the use of this agent. Despite these possible serious toxic reactions, when care and moderate doses are used this agent can be given with a degree of safety that justifies its use in selected cases.

SUMMARY

In a case of dermatomyositis without soft tissue calcinosis, corticotropin and adrenal cortical hormones were used in treatment. In addition, a calcium chelating agent (sodium ethylenediaminetetra-acetate, or Na-EDTA was used with apparent benefit.

The in vivo action, therapeutic uses and dangers of EDTA are outlined.

It is suggested that abnormal mineral metabolism in the soft tissues may play an important etiologic part in dermatomyositis.

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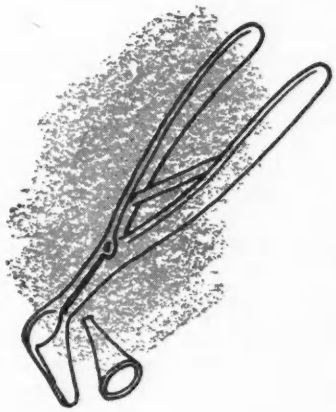

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EDITORIAL

Mr. Forand's Needle

PHYSICIANS IN GENERAL, and those active in sponsoring prepayment medical care plans in particular, were simultaneously shocked and stimulated last year when Rep. Aimee Forand of Rhode Island introduced into the Congress a bill to provide payment for surgical, hospital and nursing home care for citizens of 65 years of age or over.

Commercial insurance carriers demonstrated the same reactions and it was a matter of only a few months before some of them began broadening the narrow base on which they had provided "over-65" health care coverage in selected areas for a period of more than a year before Mr. Forand brought his proposal before Congress. Two companies in California now are writing health care contracts for persons more than 65 years of age.

In December last year the House of Delegates of the American Medical Association demonstrated a prompt and decisive reaction in adopting a resolution which called upon state and territorial medical associations to examine the field of the care of the older citizens and to develop forthwith programs which would guarantee health care benefits for those over 65 with "modest resources and low family income."

Within the three months following the A.M.A. declaration, eleven state or large county medically-sponsored Blue Shield plans have come up with some sort of coverage; at least three more are in the formative stages of additional programs and a number of others are working on their own plans to serve their own citizens in the older age bracket.

While Representative Forand has been pictured in some circles as a do-gooder who would lavishly spend taxpayers' money to coddle one group of citizens, the prompt and widespread development of these plans speaks in a loud tone for the basic area of need which he publicly uncovered.

Physicians and insurance men have long recognized that in the field of voluntary health care coverage a gap existed where the older citizens were concerned. Many plans terminated coverage at age 65. Others dropped the member when he ceased his employment because of age or disability. Some, it is true, allowed retired members of enrolled groups to continue under individual coverage, generally with increased dues payments and decreased benefits. Overall, however, the member who reached age 65 found himself either without health care coverage or with minimum coverage at maximum rates—at a time when his health needs were increased and his financial resources decreased.

Without going into a lot of statistics, we must face the obvious fact that the over-65 age group is today a sizable segment of our population and the proportion is constantly increasing. We must also face the fact that because of degenerative diseases, bone fragility and other ills inherent in older people, this age group requires much more health care than the general population. Estimates show that from two to three times as much medical and hospital care is needed for the older age group as for the average citizen in the lower age brackets.

Statistics also show that these people live on incomes which are considerably reduced from those they had during their active working days.

The combination of increased need for health care, decreased incomes and lack of insurance coverage to meet health needs was bound to set up a volatile problem which demanded a solution. Mr. Forand, through his legislative proposal, has placed his public finger on this problem and caused a great deal of searching of souls and for solutions.

Today's situation is not a new thing. Our own California Physicians' Service was born out of just such an exigency. While politicians may claim that C.P.S. would never have come into being except under threats of state medicine, it is obvious that

medical leaders were aware of the problems which demanded its birth; they were doubtless hurried in their progress by the legislative prodding.

Fortunately, the answer to the health needs of older citizens can be based on much more complete and accurate information than could the start of C.P.S. twenty years ago. In the intervening years C.P.S. has developed a wealth of actuarial background and can today calculate with fair accuracy the cost of providing any particular type of coverage.

At the same time, the actuarial picture for the older age group must be recognized as probably the most obscure part of the complete mural of figuring costs, simply because this group has heretofore been largely excluded from coverage. This exclusion now kicks back by denying access to experience figures. As a result, plans for these people are bound to be more or less experimental at the outset.

In California much thought has been given to the problems of the older citizens, a process which has gone on for some time but which has been rapidly accelerated in the past few months. The C.M.A. Council has studied the situation at length and has developed a set of basic principles which would, at one time, provide adequate health care services for older people and make these services available at a price the beneficiaries could afford to pay out of their own resources or through the largesse of friends or relatives.

The Council turned its findings over to the House of Delegates a few weeks ago and found ready acceptance of the principles by that body. The details were left to C.P.S.

C.P.S. has, with commendable promptness, suggested a plan which will soon be offered on an experimental basis in some areas of California. The plan would offer access to professional services at reasonable rates for those in the older age group with limited incomes. It would also provide a measure of co-insurance as a means of preventing abuse and preserving the dignity of the individual. It would also establish a level of professional fees which would not backfire against the profession in the event future groups of needy citizens are made the subject of additional demands upon society.

Details of the C.P.S. program will appear in future issues and will be adequately publicized for the information of the profession. Basically, they seem to offer an adequate provision of professional services for the older age group and to set a price within reach of this group. Should an underwriting loss occur in the pilot program, C.P.S. has agreed to meet part of such loss and the House of Delegates has authorized the Council to assume a part of the financial drain.

One item in the Council's recommendations concerned the determination of a proper retirement age. It suggested that age 65 should not be considered an arbitrary retirement point and the press has lauded that declaration.

Today, the aged group is receiving a lot of attention and tomorrow appears to be eligible for insurance protection against the costs of illness. The medical profession in California may well be proud of the part it is playing in this nationwide response to Mr. Forand's needle.

New C.M.A. Secretary

THE Council of the C.M.A. at its March 14 meeting accepted, with deep regret, the resignation of Dr. Albert C. Daniels as Secretary of the Association. Al has served in this capacity for the past eight years and has turned in a consistently fine performance, both as Secretary and as chairman of the Committee on Scientific Work. His resignation as Secretary was brought about by the pressure of other obligations.

Fortunately, amendments to the By-Laws now permit the separation of these two offices and Dr. Daniels will continue in charge of the scientific programs. In this work he is bound to continue to serve the Association as ably and as devotedly as he has in the past.

To succeed Dr. Daniels as Secretary, the Council has named Dr. Matthew N. Hosmer, an otolaryngologist in San Francisco. Matt brings to the Association a long background of active and effective work on committees and as an officer, eventually president, of the San Francisco Medical Society. His choice appears to assure the C.M.A. of a dedicated and able physician as Secretary, a post with few direct responsibilities but one which adds materially to the thinking processes and abilities available to the Council in its deliberations.

Guides suggested BY MEDICAL SERVICES COMMISSION FOR USE BY C.M.A. COUNCIL AND OFFICERS

1 *The Objectives of the California Medical Association are to promote the science and art of medicine and the betterment of public health. The pursuit of these objectives will require an understanding of the social and economic conditions relating to health and medical care.*

2 *Persons who are receiving help in meeting medical care costs through third-party participation should assume some continuing personal financial responsibility in those costs. At the same time, the C.M.A. recognizes that certain segments of the population are, of necessity, covered by the service concept.*

3 *The California Medical Association should institute a suitable continuing educational program to separate and identify in the public mind the cost of physician services from other ancillary costs in the field of health care.*

4 *The California Medical Association and each of its constituent county medical societies should actively participate with all interested parties in the regulation, improvement and availability of ancillary services in the field of health care.*

5 *Appropriate active and authoritative local committees are the most useful means of avoiding and controlling possible abuses of the insurance mechanisms.*

6 *The patient's right freely to select or change his physician should be preserved in the patient's interest, and any interferences or restriction on the patient that is adverse to his welfare should be opposed.*

7 *Physicians must have the right to select their method of practice, without coercion, provided they respect legal and ethical rules.*

8 *Wherever state or federal law requires the development of methods and fees for the care of individuals by private physicians, it should be the duty of the C.M.A. Council or its authorized representatives to review and advise in the development of such contracts for physicians who choose to participate or whose patients must participate, and award or withhold Council approval.*

Approved by the Council at 445th meeting, February 21-25, San Francisco.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

Like age itself, the medical and social problems raised by the great proportional increase of aged persons in the general population have come upon us with dismaying suddenness. The medical profession has an interest, a duty and a stake, professional and civic, in the best solution of these problems.

Since what the medical profession thinks now and says now and does now must have importance for a long time to come, we publish here in full a report of a study made by a special committee of the California Medical Association. The report was approved by the Council and the House of Delegates of the Association in February, 1959.—Editor.

Care of the Aging

Report of the Special Committee on Aging to the Council of the California Medical Association, February 21, 1959, San Francisco

COMMITTEE ORGANIZATION AND FUNCTION

At the January 11, 1959 meeting of the Council, the following resolution was adopted:

"*Resolved:* That a committee of not more than five members of the Council be appointed for the purpose of: (1) Conferring with interested insurance companies, (2) Conferring with appropriate committees of the C.M.A. and administrative staff, (3) Conferring with hospital associations and other ancillary professional organizations, in order to propose to the House of Delegates a positive program on the part of the C.M.A. for development of an over 65 age group program to meet the proven needs for medical and hospital care of the aged populations;

"This committee to report to the next Council meeting."

The following committee was appointed to consider and to implement this resolution: Ralph Teall, Gerald Shaw, Samuel Sherman, James MacLaggan, and T. Eric Reynolds, chairman.

The committee had as consultants the following: The Executive Committee of the Commission on Medical Services, composed of Francis J. Cox, chairman of the Commission on Medical Services; H. Dean Hoskins, chairman of the Committee on Fees; Henry Gibbons, secretary of the Medical Services Commission; Thomas Elmendorf, chairman of the Committee on Indigent and Aged; John Morrison, chairman of the C.P.S. Study Committee; John Rumsey, chairman of the Committee on Government Financed Medical Care; Malcolm Watts, chairman of the Committee on Public Relations, and Mr. Geoffrey Heller of California Physicians' Service.

The committee held three meetings, during which discussions were held with: (1) Dr. Otis Whitecotton, director of the Alemeda County Hospital; (2) Dr. Richard Johnson, member of the Citizens Advisory Committee on Aging; (3) Mr. William

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Siegel of the Association of California Boards of Supervisors; (4) Mr. M. J. Nietschmann, manager of the Accident and Health Department of the Continental Casualty Company.

FINDINGS

Studies of the medical care needs of those 65 and over have been conducted by the C.M.A. through its committees and by others throughout the years.

A summary of California's aging population[1] states as follows:

As might be expected, the aged are less healthy and require more medical care than does the population as a whole. Compared with the whole population, the aged have on the average twice as many chronic conditions causing one or more days of disability during the year, and more than twice as many restricting the person's activity in some way.

Persons 65 years and over report an average of 65 days per year in which, because of disabling conditions, they cannot carry on usual activities, while the total population reports an average of 24 such days. Hospital days are reported as averaging about two days per person for those over 65 while those under 65 average just less than one day per person.

Aged females have higher illness rates, but utilize hospitals to a lesser extent than do aged males. Home nursing care is provided for an average of 65 of every 1,000 elderly persons, while the rate is only five per 1,000 for persons under 65 years old.

The survey shows that 43 per cent of the over 65 population reported yearly family income of less than $2,000. (Today's estimate is $2,500 per couple and $1,230 per individual.*)

The following summarizes pertinent economic information about California's aged population:

Today in California there are an estimated 1,217-000 persons 65 and over. Of this group, 60,000 (5 per cent) are in institutions (450 penal, 11,500 mental, 24,500 in homes for the needy, 23,700 in homes and hospitals for chronic ill, handicapped and other). Of the 1,157,000 remaining, 799,000 are recipients of OASI—266,000 are recipients of OAS—20,000 are recipients of county general relief —approximately 343,000 are employed, of these (1,157,000) 106,000 (9 per cent) are veterans and 373,000 (31 per cent) have some type of insurance.* (40,000 are now covered by C.P.S.)

On a national basis, in 1957, about three out of every eight persons aged 65 and over had some form of voluntary health insurance.[2] The development and availability of extended coverage—beyond employment years—by Blue Shield, Blue Cross and some commercial insurers, has contributed materially to this present prepayment coverage.

Although it is apparent that substantial progress has been made, nevertheless, the medical profession must continue to assist in the development of prepaid medical care insurance to aid those people who can afford to purchase it.

California can well expect a continuing increase, probably above national levels, of people in the over 65 age group. In 1953, this group comprised 8.3 per cent of the state population and received 15 per cent of the total of all physicians' services. By 1980 this percentage is expected to rise to 25 per cent or more.[3]

Data on private facilities for care of these people is difficult to tabulate, but some work on gathering it has been done.[4] In addition, there are 646 licensed nursing homes supervised by the State Department of Public Health; 9,360 acceptable beds for the long term care of the chronically ill in 53 county institutions.[5]

The State Department of Social Welfare supervises family boarding homes and institutions for the physically and mentally normal aged. The State Department of Public Health is in charge of licensing nursing, convalescent and rest homes for the aged. Sanitaria, nursing and rest homes for the mentally ill are under the State Department of Mental Hygiene.

There is need for more information on the needs of this group of people and the facilities and resources for meeting them.

CONCLUSIONS

1. The C.M.A. should continue to join other organizations in identifying the medical care needs of the 65-plus group in California. C.M.A. should emphasize its belief that these needs can be met on a local level, without federal intervention.

2. There is need for more adequate and up-to-date information.

3. There is need for a continuing study program on the part of the C.M.A. and its component county medical societies.

4. The basic responsibility for meeting the problems of aging lies with the citizens of each community.[6]

5. For those not able to purchase their medical and hospital needs, other solutions have been available in this state since 1870. Our county and state hospital system has some of the finest physical facilities and equipment available anywhere. Approximately one-third of the hospital days for those 65 and over are provided in county hospitals. Adminis-

*C.P.S. Research.

tered on a local level, the county hospitals are most responsive to the needs of the communities they serve. This program is sound and continues to receive the endorsement of C.M.A.

RECOMMENDATIONS

This committee recommends:

1. That C.P.S. be authorized and directed to develop realistic prepayment programs for the aged in California and to report back to the Council. Such programs might contain the following essential features, provided such features are actuarially sound and feasible.

(a) Available to all persons 65 and over on a statewide basis.

(b) Itemizing the cost of professional services and hospitalization (if covered).

(c) Utilize the accepted Blue Shield principles with a realistic income ceiling and a related fee schedule.

(d) Utilize, if practical, a method of co-insurance appropriate for people with modest resources.

(e) Those county medical societies that are willing and able to, should be permitted to participate in this program by exercising local control by use of local claims processing as agents for C.P.S.

Should it be necessary for C.P.S. to request some type of financial guarantee against unusual losses in reference to this particular program, it should make a detailed analysis to the Council about such a proposal. If at all possible, however, such a program should be self-supporting on its own merits.

2. That C.P.S., as the California Blue Shield Plan, cooperate with the National Blue Shield Association program for the aged, to the extent permitted by California conditions.

3. That the C.M.A. urge expansion of extended medical insurance coverage to those reaching 65 who are retiring.

4. That the Council urge the Commission on Medical Services of the C.M.A. through its appropriate committees, to expedite the development of a continuing study in this field.

5. That the Council urge each component county medical society to establish a Committee on Medical Care of the Aged. Such a committee should determine the availability of all facilities and needs for care of the aged in its county. Where practical and appropriate it should confer with representatives of all groups or organizations having factual information relating to the medical care needs of the aging.

6. That the C.M.A. promote and encourage the development of voluntary programs to meet established needs. These programs, we believe, can be as effective as any governmental program and cheaper in cost.

7. That the C.M.A. urge that the present concept of mandatory retirement at age 65 is medically unsound and should be abandoned. The mental health of the majority of persons who still provide for their families and assume community responsibilities as well as the economy of the nation is well served by permitting the employment of these people.

8. The Committee recognizes that the A.M.A. has recommended: "Greater use of Hill-Burton Construction Act Funds in building nursing homes and chronic disease units of general hospitals; extension of an FHA type loan to nonprofit and proprietary health facilities serving the aged." The need for more trained personnel, nursing aides, is also obvious. The committee urges development of training programs, in cooperation with the California Association of Nursing Homes, Sanitariums, Rest Homes and Homes for the Aged, Inc., and other interested groups to help alleviate this shortage.

9. That the C.M.A. cooperate with the California Association of Nursing Homes, Sanitariums, Rest Homes and Homes for the Aged, Inc., State Department of Public Health, State Department of Social Welfare, and State Department of Mental Hygiene, in developing ways to raise the standards under which nursing homes are operated.

Respectfully submitted,
T. Eric Reynolds, M.D., *Chairman*

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1. California Health Survey, State Dept. of Public Health, 1954-55.

2. Voluntary Health Insurance Among the Aged, Health Information Foundation, Jan. 1959.

3. C.M.A. Committee on Aging Report, 1953.

4. Committee on Aging Report, 1956.

5. Bureau of Hospitals, State Department of Public Health, Jan. 1, 1959.

6. California: The State and Its Senior Citizens, Louis Kuplan, executive secretary, California Citizens Advisory Committee on Aging, Geriatrics, 13:808-814, Dec. 1958.

Are We Making the Same Mistakes British Doctors Made?

This British GP Thinks So

Almost every doctor who visits England comes back wanting to write an article or give a speech about socialized medicine. Because there has been so much said so many times on the subject, it has lost much of its interest.

Yet, the headquarters of the California Academy of General Practice in San Francisco recently had a visitor from England who had some startling, frightening things to say of interest to every American doctor.

The visitor was Dr. Alastair J. Marshall, Luton, England, who is visiting in this country under a Ford Foundation Grant. As an area executive in the British Medical Association and on the executive area council (one-third physicians, two-thirds laymen) for the national health system, Dr. Marshall can competently speak on this subject. Here are some of the questions presented to Dr. Marshall by the Academy's Executive Secretary Bill Rogers.

Did the doctors try to get together to present a united front against socialization?

Indeed they did. The British Medical Association polled the doctors and stated the act was completely unacceptable. In an initial poll only 17 per cent indicated they might favor or go along with the national health act.

When the government was faced with the prospect that 83 per cent weren't going to participate, what did it do?

They shot back at the B.M.A. saying they proposed to go ahead with the 17 per cent who would participate. They pointed out to the negotiators that the first people signing up would be given immediate seniority, that pensionable rights would be from that day. But the thing that really bulldozed the doctors was that during a very limited period the government offered to buy the "goodwill" of the practices of doctors who would sign up. When they re-polled the doctors after this was announced 47 per cent said they would sign up.

Do you have any idea how many of the doctors are specialists in England?

About one-seventh or one-eighth are specialists.

Has nationalization had any effect upon the number of doctors entering general practice or the specialties?

Initially there was a rush of people into specialty ranks because it appeared they were going to do considerably better. Now, everything is in a state of confusion. These young people having spent as many as 10 years as registrars (they work in hospitals as residents at a very low salary) find there are no jobs available. Many of them would like to get into general practice but find that general practitioners aren't anxious to have them either. The internists have the biggest problem.

The average GP in this country does obstetrics, pediatrics, common surgery and medicine. How does this compare with the GP in England?

Well, we do no surgery at all—the specialists have succeeded in seeing that no general practitioner has access to any hospital. The people are now conditioned to expecting specialist surgery. We do obstetrics. Most of it. That's not because the government thinks it's a good idea but there have been no hospitals built and there are no places to put these people. We know their intention is to take obstetrics away from us too once they get hospitals built.

How many GP's had hospital privileges before the government took over?

Many.

I've heard you have a bed shortage. Do you agree?

Yes! Our patients expect to wait two years for the removal of tonsils, two or three years for a chronic appendix; they will certainly wait that long for a gall bladder or a gastrectomy. Emergency surgery is done just as it was before when it is needed.

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You would think this would produce a lot of private work.

True, but it is mostly in the consultative field.

Do you think socialization was forced mostly by the Labor government?

No. They brought it in but it was a coalition government that started the program. Winston Churchill himself welcomed the advent of the national health service.

How have drug manufacturers fared under socialization?

Initially, very well. Now they are finding more of a "hard sell." The first few years it was wide open and anybody could prescribe anything they liked. As soon as costs rocketed the government made restrictions. Now doctors are very wary about prescribing new products since the doctors may end up having to pay for the drug themselves The drug companies must enter into price agreements. In fact we get directives not to use certain drugs because the companies have not entered into agreement.

How many patients a day do you see now—how many were you seeing before?

Because of my commitments I have a full list and have 3,600 patients. Any patients above that I'm not paid for. Sometimes I'm forced to take on new patients such as when twins are born to a family and if I'm a friend of theirs and want them to remain as my patients. I get in my office around 8:30 in the morning and will work until noon and will see 40 to 50 patients. I'll certainly see 50 or 60 in the evening. I'll have 20 to 30 home visits. This makes a total of about 120 to 140 a day. In the old days I used to see around 35.

What's the basis of your payment?

I'm paid solely on the basis of number of patients on my list, not the amount of work I do. Besides this we're paid 65 cents for a series of immunizations and we receive a delivery fee of $21. There is nothing else we get paid for.

If the government doesn't like the way you practice what can they do about it?

They can fine you after a warning. They'll do this if a patient complains you were rude, wouldn't make a house call or if the government inspectors don't find your office up to par. They will also fine you for prescribing a drug which is not approved by them.

Are hypochondriacs a problem?

They're a dreadful problem. We're knee-deep in them. The national health system has increased the neurotics considerably.

Why don't you refer some of these patients to a psychiatrist?

It's almost impossible to find one. The psychiatrists are few and far between.

But you can dismiss patients, can't you?

Yes, but I have to consider my pocketbook, family—and reputation.

Do you think the majority of the public is satisfied?

This is difficult to assess because of the conditioning everybody had with the emergency medical service during the war. I don't think they are satisfied or dissatisfied. The majority just don't seem to care.

Under such a plan as this people are getting more medical care than ever before. If you discount what it's costing do you think they're getting better care than prior to 1948?

Oh no. The over-all care probably is better because of those who couldn't afford any kind of care before. But almost every doctor will admit that the quality of his work has deteriorated, simply because of the mass of people that seek medical advice even for the most trivial complaints.

What effect has this had on medical education?

Well, the government was smart. When the national health act first came in they also brought in an education act which made it easier for anyone to go into medicine. In the last two years it has become very apparent this lovely "springtime" has fallen flat. Now there is a falling off of people going into medicine. I would certainly not advise my son to go into medicine today.

Where do you feel you British doctors made your biggest mistake in letting the government take over?

We were not unified and simply didn't stand firm against the government. Our lines were broken here, there and everywhere. We all feel the government would never have gone ahead with this system if we had any unification within our ranks. But ours being an individualistic profession everybody had ideas of their own and you never could get three people to agree with each other.

How effective has the B.M.A. been in getting reforms and improvements?

Rather ineffective. The trouble is it's always approached the government completely on *ethical* lines.

Now about 80 per cent of the doctors belong to what we call a "guild." I suppose you might call it a union, but we don't like that term for a professional group. Because of its charter the B.M.A. is not allowed to participate in politics and that's the reason we had to form the guild. The B.M.A. could have been much more effective if it had the power we have given to this British Medical Guild.

How does the guild work?

It really hasn't had an opportunity to work yet. Each doctor, however, has signed a firm pledge that he will abide by the actions of the guild. If doctors are going to let each other down, then we might as well forget about the whole thing. If the guild should ask its members to resign in any given area, it will upset the entire national health plan and will be a very strong bargaining force. We'd continue to see our patients, of course, at a very low fee but would refuse to do any of the paper work. The doctors in the rest of the country would be contributing to the general fund of the guild to help support the doctors who won't be receiving anything from the national health fund. We have just about discovered the only way to fight a government is through trade union rules.

As in England there are a few doctors in this country who would not oppose government control in medicine. What advice would you give to the majority who want to see freedom in medical practice maintained?

I only wish that the A.M.A. could finance a tour to send those doctors (who would favor a national health service) to England. Idealistically it's a wonderful thing that everybody can have free medical care and attention. But in practice it just doesn't work. The cost has rocketed about three times what it was thought the maximum costs would be. The government obviously didn't realize so many people would take advantage of it and take advantage of it so often.

What would you guess the gross annual income is for a general practitioner?

As a single practitioner his gross would probably be between $8,000 and $10,000 a year. Out of this he would have to pay for his office, equipment, car, his secretary, utilities and tax which would bring him down to a net of $5,000 to $6,000 a year. In a group a doctor can do better since he shares expenses.

What about the incomes of specialists?

From the government most of them get, depending on the amount of hours they put in, around $10,000 a year. This gives them quite a bit of free time for consultative practice so they can do much better. Oddly enough they get the same income no matter what their specialty is. The eminent brain surgeon will receive just as much as a dermatologist. Internists have the biggest problem since there are many more of them than there are positions open. Those working in the hospitals waiting for a consultative post to open (some have now been waiting ten years) make around $5,000 a year.

From your travels in this country do you feel we are following in your footsteps?

Unfortunately, yes. I feel the same pattern is reproducing itself here. And what is more I have seen very little evidence of your profiting by our mistakes. There is a similarity in the way governments work and you could learn much from our example.

I know you are acquainted with our Forand Bill. From your experience how do you think American doctors should approach this type of legislation?

If American doctors don't feel this is the best type of medicine for their patients they should oppose it now. But you can't do this unless you're unified—and you are *not* unified. If you Americans benefit from our experience you'll remember the words of your own Ben Franklin: "We must all hang together, or assuredly we shall all hang separately."

What is your hope for the future as far as England is concerned?

I think it's more than a hope. Within the next two years there will have to be considerable modification or we will quit. Having had 10 years of this we are much more united now than we were in 1948. At this very moment the government and the medical profession have reached a deadlock. We were on the verge of a walkout when the government set up a Royal Commission (an independent body of prominent lay citizens) to appraise the entire program. We are now waiting for the report of the commission to see what we'll do.

Do you think most British doctors would share the views you've just expressed?

Definitely. I prepared a talk expressing most of these views before I left. To get reactions I showed a copy to both a conservative and then to a very socialistic minded doctor. Both agreed with *everything* I said. But this was what was interesting. The conservative added: "If you have any influence on American doctors you will be moving them along toward socialism." While the socialist exclaimed: "If American doctors should really take to heart what you've said, socialization of medicine in the United States could be set back 50 years."

Council Meeting Minutes

444th Meeting

Tentative Draft: Minutes of the 444th Meeting of the Council, Los Angeles, Statler Hilton Hotel, January 10 and 11, 1959.

The meeting was called to order by Chairman Lum in the Boston Room of the Statler Hilton Hotel, Los Angeles, on Saturday, January 10, 1959, at 5:00 p.m.

Roll Call:

Present were President West, President-Elect Reynolds, Speaker Doyle, Vice-Speaker Heron, and Councilors Wheeler, Todd, Foster, O'Neill, Kirchner, O'Connor, Shaw, Pearman, Harrington, Davis, Sherman, Lum, Bostick and Teall. Absent for cause, Secretary Daniels, Editor Wilbur and Councilor MacLaggan.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas, Clancy, Whelan, Marvin and Collins and Dr. Walter Batchelder and Mrs. Margaret Griffith of C.M.A. staff; Messrs. Hassard and Huber of legal counsel; Messrs. Read and Salisbury of the Public Health League of California; county society executives Rosenow, Field and Pettis of Los Angeles, Bannister of Orange, Nute of San Diego, Geisert of Kern, Neick of San Francisco, Thompson of San Joaquin, Donovan of Santa Clara and Dermott of Sonoma; and numerous physicians as officers of county societies and in other capacities, including Doctors Roberta Fenlon, E. E. Wadsworth, Jr., Malcolm Merrill, O. C. Railsback, Justin J. Stein, J. J. Crane, Lewis Bullock, Dudley Bell, Robert L. Day, Herman Stone, George J. Budd, John R. Peterson, George Maner, William Gardenier, Horace Sharrocks, Thomas J. Rossitto, William F. Quinn, and others.

1. *Minutes for Approval:*

On motion duly made and seconded, minutes of the 443rd meeting of the Council, held December 13, 1958, were approved.

2. *Membership:*

(a) A report of membership as of January 8, 1959, was presented and ordered filed.

The executive secretary reported that the Association's membership as of December 31, 1958, indicated the possibility of an allotment of one additional delegate to the American Medical Association in 1959.

(b) On motion duly made and seconded in each instance, three applicants were voted Associate membership. These were: Louis E. Blachman, Donald L. Martinson and Hume Anthony Thomason, Los Angeles County.

(c) On motion duly made and seconded in each instance, four applicants were voted retired membership. These were: Stuart A. Cameron, E. C. Ehlers, San Bernardino County; K. S. Eymundson and Marius A. Francoz, San Francisco County.

(d) On motion duly made and seconded, reductions of dues were voted for six members because of illness or postgraduate study.

3. *Financial:*

(a) A report of bank balances, loans, etc., as of January 8, 1959, was presented and ordered filed.

(b) Dr. Heron, chairman of the Finance Committee, presented a budget for the 1959-1960 fiscal year which had been considered by the committee. Discussion was held on various items in the budget and it was agreed that it would come before the Council at the next meeting for approval. It was also agreed that copies should be forwarded to the members of the appropriate committee of the 1959 House of Delegates for their review prior to the 1959 Annual Session.

4. *Commission on Medical Services:*

(a) Councilor Harrington reported on a meeting held with pharmaceutical representatives, at which agreement was reached on limitations on antibiotics prescriptions in public welfare cases and also on the maximum cost of prescriptions in such cases.

(b) Mr. Hassard reported, in behalf of Dr. Cox, that it was proposed to present to the Industrial Accident Commission of the State of California a request for an upward revision of portions of the fee schedule applicable to industrial injury cases and that actuarial services would be required in this connection.

On motion duly made and seconded, it was voted to authorize the Commission on Medical Services to prepare and present to the Industrial Accident Commission an application for a revision upward of portions of the minimum medical fee schedule.

On motion duly made and seconded, it was voted to authorize the Commission on Medical Services to retain the firm of Coates, Herfurth & England as actuarial consultants in connection with this application.

(c) Mr. Thomas reported that a subcommittee of the Committee on Rehabilitation seeks to determine the need for rehabilitation facilities and, to this end, wishes to use the services of a consultant, at no cost, to assist in preparing the outline of an investigative procedure and an application for supporting funds from an outside foundation. After discussion, this procedure was approved.

5. *Commission on Public Health:*

Dr. Bostick reported on the consideration already given to matters concerned with student health pro-

grams in state colleges and suggested that this matter be referred to the Committee on School Health. On motion duly made and seconded, this referral was approved.

6. *Commission on Professional Welfare:*

Dr. Kirchner reported that a proposed article on tetanus immunization had been prepared and suggested that it be referred to the editor for possible inclusion in CALIFORNIA MEDICINE. On motion duly made and seconded, this proposal was approved.

7. *Public Relations:*

Mr. Ed Clancy reported, also on tetanus immunization, that a report on a program of immunization put on by the Orange County Medical Association was in preparation and copies would be sent to all members of the Council.

8. *Committee on Committee Nominations:*

Dr. Bostick presented the committee's proposed list of commission and committee nominations, which, after discussion, was approved. On motion duly made and seconded, it was voted to discontinue the Committee on Medical Economics and the Committee on Medical Education and Hospitals, since the functions of those committees were adequately covered by other committees. It was also agreed that the Committee on Blood Banks should meet during the coming year to reevaluate its functions and report back to the Committee on Committee Nominations.

Dr. Bostick also reported that Doctors Frank West (chairman), E. E. Wadsworth, Jr. and Bert Halter had accepted appointment to a special committee to work on the subject of physicians' hospital relations and to maintain liaison with the California Hospital Association.

Dr. Bostick also reported that Doctors Paul I. Hoagland and Bert Halter and Mr. Guy W. Wadsworth, Jr. had been selected for nominations to succeed themselves as members of the Board of Trustees of California Physicians' Service and Doctors Angus C. McDonald of Los Angeles and John E. Vaughan of Bakersfield had been chosen to be nominated for this board in place of two physician members not eligible for reappointment to the board. On motion duly made and seconded, these nominations were approved.

9. *Legal Department:*

Mr. Huber reported on a suit filed in federal court in which the Association is named as one defendant. Legal counsel will handle the case.

10. *Representation at A.M.A. Meetings:*

On motion duly made and seconded, it was voted to include the President, President-Elect and Council Chairman or his designate among those attending meetings of the American Medical Association and to adjust the 1959-1960 budget accordingly.

11. *State Department of Public Health:*

Dr. Malcolm Merrill, State Director of Public Health, reviewed some of the topics included in the 1958 annual report of his department. These included receipt of a grant of $160,000 for a study of childhood accidents, which claimed the lives of 1,100 children under the age of 15 years in 1958. They also showed a decline to only four cases of human rabies from dog bites, compared with 47 in 1957 and 146 in 1956. Both birth and death rates were slightly lower than in 1957. Poliomyelitis immunizations appeared to be about 85 per cent effective for those who completed the series of three shots.

On motion duly made and seconded, it was voted to affirm the action taken by the A.M.A. House of Delegates on December 4, 1958, in regard to physicians and state and county medical associations cooperating with public health authorities to secure a greater public participation in polio immunization campaigns.

12. *Office of Coroner, Los Angeles County:*

Dr. George Maner of Los Angeles reported on charges which have been filed against the coroner of the county and which, if sustained in court, would prohibit pathologists from retaining portions of tissue taken during postmortem examinations.

He suggested that legislation to clarify the authority of pathologists to retain such tissues be introduced into the State Legislature and, on motion duly made and seconded, this proposal was approved.

On motion by Dr. Bostick, duly seconded, the following resolution was adopted:

WHEREAS, In the conduct of postmortem examinations by pathologists or other physicians, either in hospital practice or in coroners' offices, it is essential that tissue specimens be retained or stored for microscopic examinations or other examinations, and be available either for review by other physicians, or by the parties in case of litigation, or for verification of findings; and

WHEREAS, Destruction of such tissue specimens and stained microscopic sections and paraffin blocks would impede the development of pathology, limit the scope of examination and scientific investigation as to the causes of death and thus be detrimental to medical progress and not in the best interests of the public health; and

WHEREAS, Under certain circumstances the destruction of such tissue specimens, stained microscopic sections and paraffin blocks would deny to the parties in case of litigation the right of review

of vital evidence and thus thwart the purposes of justice; and

WHEREAS, The destruction of such vital evidence would be detrimental to the public welfare and the administration of justice; therefore, be it

Resolved: That the California Medical Association condemns such practices and pledges to use its moral influence and such other resources as it may deem advisable, in defense of the principle that in the conduct of postmortem examinations, microscopic examination and retention of tissue specimens is essential to the best interest of the public health, public welfare and medicine.

On motion duly made and seconded, it was voted to support the medical examiner system in which certified pathologists are in charge of postmortem examinations.

On motion duly made and seconded, it was voted that

1. The C.M.A. Council approves the efforts of the Los Angeles County Medical Association in support of the pathologist system of coroners' office operations; and

2. The C.M.A. Council stands ready to indemnify the Los Angeles County Medical Association for expenses incurred in this effort.

13. *Committee on Postgraduate Activities:*

At the request of Councilor Foster, Dr. Edward C. Rosenow, Jr., chairman of the Committee on Postgraduate Activities, reported that an adverse reaction had been received from some medical schools on the Council's earlier decision to allow commercial exhibits at postgraduate institutes.

On motion duly made and seconded, it was voted to reconsider the action taken earlier.

On motion duly made and seconded, it was voted to revert to the policy position in effect in earlier years, providing that commercial exhibits shall be permitted at postgraduate institutes if the exhibitors and their products are first cleared through the Advertising Committee and if all funds accruing from such exhibits come to the Association.

14. *Legislation to Benefit the Aged Population:*

Dr. Reynolds discussed the alternatives open to the medical profession in facing the anticipated introduction of legislation to provide special medical and hospital services for the segment of the population above the age of 65 years. On motion duly made and seconded, the following resolution was adopted:

Resolved: That a committee of not more than five members of the Council be appointed for the purpose of

1. Conferring with interested insurance companies,

2. Conferring with appropriate committees of the C.M.A. and administrative staff,

3. Conferring with the hospital association and other ancillary professional organizations in order to propose to the House of Delegates a positive program on the part of the C.M.A. for development of an over 65 age group program to meet the proven needs for medical and hospital care of the aged population;

This committee to report to the next Council meeting.

Chairman Lum read a message received from an insurance carrier which has introduced a contract for medical and hospital service costs for the aged population. On motion duly made and seconded, it was voted to refer this message to the Commission on Medical Services.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 12:50 p.m.

DONALD D. LUM, M.D., *Chairman*
JOHN HUNTON, *Acting Secretary*

* * *

445th Meeting

Tentative Draft: Minutes of the 445th Meeting of the Council, Sheraton-Palace Hotel, San Francisco, February 21 to 25, 1959.

The meeting was called to order by Chairman Lum in the French Parlor of the Sheraton-Palace Hotel, San Francisco, on Saturday, February 21, 1959, at 9:30 a.m.

Roll Call:

Present were President West, President-Elect Reynolds, Speaker Doyle, Vice-Speaker Heron, Editor Wilbur and Councilors MacLaggan, Wheeler, Todd, Foster, O'Neill, Kirchner, O'Connor, Shaw, Pearman, Harrington, Davis, Sherman, Lum, Bostick and Teall. Absent for cause, Secretary Daniels.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas, Clancy, Collins, Marvin, Whelan and Salisbury and Dr. Batchelder of C.M.A. staff; Messrs. Hassard and Huber of legal counsel; Ben H. Read of the Public Health League; county society executives Scheuber of Alameda-Contra Costa, Jensen of Fresno, Rosenow, Pettis and Field of Los Angeles, Bannister of Orange, Foster of Sacramento, Nute of San Diego, Neick of San Francisco, Thompson, Pearce and Monnich of San Joaquin, Wood of San Mateo, DeVere of Stanislaus, Donovan and Colvin of Santa Clara; Doctors A. A. Morrison, A. E. Larsen and William Gardenier of California Physicians'

Service; William Rogers of the California Academy of General Practice; Doctors J. J. Stein and Dan Morton of the dean's office of UCLA; Dr. Malcolm Watts of the dean's office of UC; Dr. Marshall Porter, State Director of Mental Hygiene; Doctors Dan O. Kilroy, Carl Moore, John Vaughan, Clarence H. Albaugh, Elizabeth Mason-Hohl and other physicians who attended portions of the meeting.

1. *Minutes for Approval:*

On motion duly made and seconded, minutes of the 444th meeting of the Council, held January 10-11, 1959, were approved.

2. *Membership:*

(a) A report of membership as of February 17, 1959, was presented and ordered filed.

(b) On motion duly made and seconded, seven delinquent 1958 members were voted reinstatement.

(c) On motion duly made and seconded in each instance, 28 applicants were voted Associate Membership. These were: Wm. L. Anderson, Dell F. Dullum, Jack F. Ehle, Golda Fischer, Wm. F. Knowles, John W. Thomas, Hans J. Zwang, Alameda-Contra Costa Counties; Philip Winsor, Louis E. Blachman, Louis Hertz, Donald L. Martinson, H. A. Thomason, Joseph T. Crockett, Eugene A. Hickman, Vahe Meghrouni, Gail Victor Anderson, Shannon D. Brunjes, Keith H. Kelly, Johanna Eliz. Lund, Dean LaRoche Moyer, Jesse L. Steinfeld, Kouichi R. Tanaka, Raymond H. Ten Pas, Ruth Perkins Walter, Robert H. Yonemoto, Los Angeles County; Edward E. Eklund, Napa County; Thomas W. Kyddson, Sacramento County; and Sidney B. Clark, San Diego County.

(d) On motion duly made and seconded in each instance, 12 members were voted Retired Membership. These were: Frederic W. Burcky, Herman W. Covey, Edwin H. Hall, Earl K. Pfaff, Leroy B. Sherry, Los Angeles County; Leo L. Stanley, Marin County; W. F. Kistinger, Orange County; R. R. Newell, Wm. Francis Shaw, San Francisco County; Clifford F. Jones, Santa Barbara County; Robert Allen Powers, Santa Clara County; and Catherine M. Quinlan, Sonoma County.

(e) On motion duly made and seconded in each instance, 22 members were voted a reduction of dues because of illness or postgraduate study.

3. *Financial:*

(a) A report of bank balances, loans, etc., as of February 17, 1959, was presented and ordered filed.

(b) A proposed budget for the 1959-1960 fiscal year was presented by the Finance Committee and, after discussion and on motion duly made and seconded, was approved for presentation to the House of Delegates.

4. *By-Law Amendments:*

Discussion was held on several proposed By-Law amendments, all intended to adjust technical requirements and to establish a new organization of commission and committee activities.

On motion duly made and seconded, in each instance, the following proposed By-Law amendments were approved for presentation to the House of Delegates:

(a) Chapter VII, Section 3, paragraphs (c) and (d), relating to appointments to Commissions and Committees.

(b) Chapter VII, Section 5, paragraph (b), relating to appointments to commissions and committees.

(c) Chapter VII, Section 9, paragraphs (b), (c), (d), and (e), relating to a realignment of commissions.

5. *Supplemental Report of the Council:*

Dr. Reynolds presented the report of his special committee to consider methods of providing medical care for aged citizens. This report, after discussion and amendment, and on motion duly made and seconded, was approved as a supplemental report of the Council for presentation to the House of Delegates.

6. *California Physicians' Service:*

Dr. Arlo A. Morrison, chairman of California Physicians' Service, reported that C.P.S. had developed, at the request of Dr. Reynolds' committee (item 5) a program for the provision of physicians' services to the older age group, based upon fees at a $5 factor, on which 60 per cent would be paid to physicians, and embracing co-insurance on the basis of the member paying a nominal sum for each visit. C.P.S., he stated, would plan to offer this coverage in two areas for a trial period, would agree to subsidize the program up to losses of $100,000 (if incurred) and would request the Association to furnish further subsidy if needed. Dr. Morrison also suggested that the Association cooperate with the American Association of Retired Persons, an organization which is currently arranging medical care coverage for 300,000 persons.

On motion duly made and seconded, it was voted to commend Dr. Morrison and California Physicians' Service for the report and the cooperation offered.

7. *Council, Commission, Committee Procedures:*

Mr. Hassard presented a set of standing rules proposed for the conduct of Council, commission and committee procedures. After discussion, on

motion duly made and seconded, these procedures were adopted, subject to an addition of a section which would organize the delegation to the A.M.A. on a similar basis.

8. *Association of American Physicians and Surgeons:*

(a) Discussion was held on the request of a county health officer for an expression of opinion on the fluoridation of water. On motion duly made and seconded, it was voted to reaffirm the previous decision of Council in favor of the fluoridation of communal water supplies.

(b) On motion duly made and seconded, it was voted not to sponsor an essay contest developed by the Association of American Physicians and Surgeons.

(c) On motion duly made and seconded, it was voted not to provide exhibit space for the Association of American Physicians and Surgeons.

9. *Free Choice of Physician:*

Discussion was held on questions which the American Medical Association had posed to state societies on their attitudes toward possible inflexibility in upholding the principle of free choice of physician. On motion duly made and seconded, it was voted to utilize for this purpose two of a set of guides developed by the Commission on Medical Services which includes the following language:

"The patient's right freely to select or change his physician should be preserved in the patient's interest and any interferences or restriction on the patient that is adverse to his welfare should be opposed.

"Physicians must have the right to select their method of practice, without coercion, provided they respect legal and ethical rules."

10. *Tetanus Immunization:*

Editor Wilbur discussed an article on tetanus immunization which had been submitted for publication in CALIFORNIA MEDICINE and proposed as a part of a public campaign to secure additional immunizations; he also discussed the possibility of treating the subject editorially rather than as a scientific article. On motion duly made and seconded, it was voted to prepare an editorial on tetanus immunization.

11. *Los Angeles Physicians Aid:*

Dr. Clarence H. Albaugh, representing Los Angeles Physicians Aid, reported that that organization was planning construction of a nursing home for the care of aged physicians. Additional financing in the amount of $100,000 would be required and he requested that Physicians' Benevolence Fund, Inc., consider making a loan in that amount. Inasmuch as this is a separate corporation, which had a meeting planned on February 25, Dr. Albaugh agreed to present the request at that meeting.

12. *Delegates to the A.M.A.:*

Dr. Eugene Hoffman requested the Council to bring before the House of Delegates a resolution of appreciation for the many past services rendered by Dr. E. Vincent Askey of Los Angeles. On motion duly made and seconded, it was unanimously voted to prepare such a resolution, to place it before the House of Delegates and to prepare a scroll to be presented to Dr. Askey at the time of the next A.M.A. meeting.

13. *Commission and Committee Nominations:*

Councilor Bostick, chairman of the committee on nominations, presented the committee's list, which on motion duly made and seconded, was voted approval for presentation to the House of Delegates.

14. *Committee on Legislation:*

Dr. Dan O. Kilroy, chairman of the Committee on Legislation, reported that federal officials have proposed that the needy disabled be added to the categories of those now benefiting under the social welfare health care program. No action taken.

15. CALIFORNIA MEDICINE:

Editor Wilbur reported that the editorial board had proposed several changes in the content of the journal, including additional scientific editorials, clinical pathological conferences and other items. He discussed the difficulties involved in securing some of this material. He also suggested that a series of articles on the functioning of the Association be prepared and that commission and committee reports, after approval by the Council, be printed. Dr. Wilbur also suggested that a representative of each medical school be added to the editorial board as a source for additional scientific material and asked that consideration be given to the possibility of converting CALIFORNIA MEDICINE into a regional, rather than a state, journal.

16. *Commission on Medical Services:*

(a) Dr. Francis J. Cox, chairman of the Commission on Medical Services, presented a set of principles for the guidance of the Association in its dealings with various aspects of prepaid health insurance. On motion duly made and seconded, the principles (see page 290 of this issue, CALIFORNIA MEDICINE) were approved:

(b) On motion duly made and seconded, approval was voted for the report of the Committee on Indigent and Aged.

(c) On motion duly made and seconded approval was voted for the report of the Committee on Rehabilitation.

17. *Cancer Commission:*

Dr. Davis presented a resolution adopted by the Cancer Commission on exfoliative cytology and requested Council approval. On motion duly made and seconded, the resolution was amended. The chairman was requested to submit it, as amended, as an emergency item in the House of Delegates.

18. *Committee on Insurance:*

(a) Dr. Homer Pheasant, chairman of the Committee on Insurance, reported that the 1958 experience under the Association's disability insurance program had shown a loss ratio of 61 per cent and that an increase in benefits might be sought in the future. It was regularly moved, seconded and voted to approve this plan.

(b) Dr. Pheasant also reported that a definite offering of a group major hospitalization insurance plan was about ready for compiling and presentation to county secretaries, after which the program will be presented to the Council.

19. *Legal Department:*

Mr. Hassard reported that the Association's share of reimbursement for the cost of maintaining scientific administration of the office of coroner had amounted to $1,625. On motion duly made and seconded, it was voted to pay this sum.

Mr. Hassard also reported that an insurance broker had requested the use of the C.M.A. mailing list for an offering of insurance to provide reimbursement for days spent in court in lawsuits. On motion duly made and seconded, it was voted that the regular policy of denying the use of the mailing list for commercial purposes be followed.

20. *Interprofessional Institute:*

A report by Dr. Batchelder on his meeting with allied professional representatives under the sponsorship of the State Department of Public Health, was reviewed. It was proposed that an interprofessional institute be established for the purpose of exploring the relationship between human and animal medicine, especially in disease entities which might be transmittable from animals to humans. On motion duly made and seconded, it was voted to participate in this proposal and to authorize Dr. Batchelder to represent the Association at meetings.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 9:00 a.m., Wednesday, February 25, 1959.

DONALD D. LUM, M.D., *Chairman*
JOHN HUNTON, *Acting Secretary*

446th Meeting

Tentative Draft: Minutes of the 446th Meeting of the Council, San Francisco, Sheraton-Palace Hotel, February 25, 1959.

The meeting was called to order by Chairman Lum in the California Room of the Sheraton-Palace Hotel, San Francisco, on Wednesday, February 25, 1959, at 5:15 p.m.

Roll Call:

Present were President Reynolds, President-Elect Foster, Speaker Doyle, Vice-Speaker Heron, Editor Wilbur and Councilors MacLaggan, Wheeler, Todd, Quinn, O'Neill, Kirchner, O'Connor, Shaw, Gifford, Harrington, Davis, Sherman, Campbell, Lum, Bostick and Teall. Absent for cause, Secretary Daniels.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas and Clancy and C.M.A. staff; Messrs. Hassard and Huber of legal counsel, and Doctors Elizabeth Mason-Hohl and Clarence H. Albaugh.

Welcome to New Members:

Chairman Lum extended a welcome to Dr. Paul D. Foster, newly-elected President-Elect, and Doctors William F. Quinn of Los Angeles, Byron L. Gifford of Santa Barbara and Donald M. Campbell of San Francisco, new Councilors.

1. *Election of Council Officers:*

(a) On nomination duly made and seconded, Dr. Donald D. Lum was elected Chairman.

(b) On nomination duly made and seconded, Dr. Samuel R. Sherman was elected Vice-Chairman.

2. *Appointments:*

(a) On nominations duly made and seconded in each instance, the following were appointed to the positions shown opposite their names:

Editor . . . . . Dwight L. Wilbur
Executive Secretary . . . Mr. John Hunton
Legal Counsel . . Peart, Baraty & Hassard

(b) The chairman, the council concurring, announced the following appointments:

1. Finance Committee: Ivan C. Heron, chairman; Samuel R. Sherman; Burt L. Davis.

2. C.P.S. Board of Trustees: Ivan C. Heron, Burt L. Davis and Gerald W. Shaw.

3. Advertising Committee: Robertson Ward, chairman; Eugene Hopp, Allen T. Hinman, W. Dayton Clark, Ralph Weilerstein.

3. *Kern County Nursing Home:*

Discussion was held on the proposal of the Board of Supervisors of Kern County to construct and operate a nursing home in the county. On motion duly made and seconded, it was voted to refer this

matter to the ad hoc Committee on the Aging, under the chairmanship of Dr. Reynolds.

4. *Standing Rules for Council, Commissions, Committees:*

On motion, the standing rules were amended to include the Delegates to the American Medical Association on the same basis as commissions and committees.

It was also agreed that a set of guides should be prepared for members of the C.M.A. House of Delegates.

5. *Time and Place of Next Meeting:*

The chair announced, the Council concurring, that the next meeting would be held in Los Angeles on Saturday, March 14, 1959.

6. *Time and Place of 1960 Annual Session:*

It was agreed that the 1960 Annual Session be held at the Ambassador Hotel, Los Angeles, on March 13 to 16, 1960.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 6:00 p.m.

DONALD D. LUM, M.D., *Chairman*
JOHN HUNTON, *Acting Secretary*

In Memoriam

DOWNS, LAWRENCE E. Died February 18, 1959, aged 75, of heart disease. Graduate of University of Louisville School of Medicine, Kentucky, 1912. Licensed in California in 1921. Doctor Downs was a member of the Los Angeles County Medical Association.

✤

ELLIOT, ROBERT EDWIN. Died January 17, 1959, aged 51. Graduate of Stritch School of Medicine of Loyola University, Chicago, Illinois, 1932. Licensed in California in 1948. Doctor Elliot was a member of the Los Angeles County Medical Association.

✤

FAIRCHILD, FRED R. Died February 22, 1959, aged 83. Graduate of Cooper Medical College, San Francisco, 1902. Licensed in California in 1902. Doctor Fairchild was a life member of the Yolo County Medical Society.

✤

FLUDE, JOHN M. Died February 9, 1959, aged 65. Graduate of Jefferson Medical College of Philadelphia, Pennsylvania, 1918. Licensed in California in 1938. Doctor Flude was a member of the Los Angeles County Medical Association.

✤

FRANKLIN, EARL ALEXANDER. Died February 14, 1959, aged 63. Graduate of Jefferson Medical College of Philadelphia, Pennsylvania, in 1922. Licensed in California in 1942. Doctor Franklin was a member of the San Francisco Medical Society.

LA MONT, WYANT. Died February 7, 1959, aged 59. Graduate of Rush Medical College, Chicago, Illinois, 1925. Licensed in California in 1926. Doctor La Mont was a member of the Los Angeles County Medical Association.

✤

LEYDA, PAUL L. JR. Died in Denver, Colorado, February 24, 1959, aged 35. Graduate of University of Colorado School of Medicine, Denver, 1946. Licensed in California in 1953. Doctor Leyda was a member of the Alameda-Contra Costa Medical Association.

✤

MEAD, CHESTER IRA. Died in Bakersfield, February 11, 1959, aged 58. Graduate of State University of Iowa College of Medicine, Iowa City, Iowa, 1931. Licensed in California in 1934. Doctor Mead was a member of the Kern County Medical Society.

✤

REEDER, THOMAS PICKINS, JR. Died February 26, 1959, aged 47. Graduate of University of Texas Medical Branch, Galveston, Texas, 1936. Licensed in California in 1939. Doctor Reeder was a member of the Orange County Medical Association.

✤

SCHEFFEL, ALFRED GARLAND. Died in Santa Monica, February 13, 1959, aged 45, of heart disease. Graduate of Northwestern University Medical School, Chicago, Illinois, 1937. Licensed in California in 1937. Doctor Scheffel was a member of the Los Angeles County Medical Association.

NINTH ANNUAL
REGIONAL POSTGRADUATE INSTITUTE
WEST COAST COUNTIES

Presented by Committee on Postgraduate Activities of the California Medical Association, in cooperation with Monterey, Santa Cruz and San Benito County Medical Societies and Stanford University School of Medicine, Lowell A. Rantz, M.D., Associate Dean and Director of Postgraduate Medical Education.

Golden Bough Theater and
La Playa Hotel, Carmel... May 14 and 15

PROGRAM

THURSDAY, MAY 14, 1959

9:00-10:00 a.m.—**Useful Measures in Postoperative Care**—Victor Richards, M.D.

10:15-12:00 noon—**Two Panel Discussions** (you may go to one of your choice):

Panel 1: **Management of Highway Injuries**

Panel 2: **Medical Diseases of the Kidney**

Concurrent Lectures

10:15-11:00 a.m.—**Use of Radioisotopes in Diagnosis and Treatment**—Joseph P. Kriss, M.D.

11:10-12:00 noon—**Management of Some Common Endocrine Problems**—Francis S. Greenspan, M.D.

2:00-3:00 p.m.—**Hospital Acquired Infection**—Lowell A. Rantz, M.D.

3:15-5:00 p.m.—**Three Panel Discussions** (you may go to one of your choice):

Panel 1: **Hemotological Problems in the First Year of Life**

Panel 2: **Diagnosis and Treatment of Jaundice**

Panel 3: **Endocrine Disorders**

Concurrent Lectures

3:15-4:00 p.m.—**Problems in the Repair of Inguinal Hernia**—Roy B. Cohn, M.D.

4:10-5:00 p.m.—**Enzymes in Diagnosis and Treatment**—Laurens P. White, M.D.

6:30 p.m.—"No Host" Cocktail Party and Dinner-Dance

FRIDAY, MAY 15, 1959

9:00-10:00 a.m.—**Poisoning in Childhood**—Robert H. Alway, M.D.

10:15-12:00 noon—**Two Panel Discussions** (you may go to one of your choice):

Panel 1: **Interpretation of Laboratory Results**

Panel 2: **Treatment of Burns**

Concurrent Lectures

10:15-11:00 a.m.—**Clinical Course of Cirrhosis of the Liver**—Claude P. Callaway, M.D.

11:10-12:00 noon—**Care of the Premature Infant**—Ruth T. Gross, M.D.

2:00-3:00 p.m.—**The Role of the Artificial Kidney in Treatment**—J. Max Rukes, M.D.

3:15-5:00 p.m.—**Three Panel Discussions** (you may go to one of your choice):

Panel 1: **Problems in Hematology**

Panel 2: **Hemoptysis, Hematemesis and Melena**

Panel 3: **Diagnosis and Treatment of Common Infections**

Concurrent Lectures

3:15-4:00 p.m.—**Diagnosis and Treatment of Jaundice in the Newborn**—Ruth T. Gross, M.D.

4:10-5:00 p.m.—**Useful Measures in the Treatment of Late Cancer**—Victor Richards, M.D.

HOST: Monterey County Medical Society . . . **REGIONAL CHAIRMAN:** Chester G. Moore, M.D., 440 E. Romie Lane, Salinas, California . . . **INSTITUTE FEE:** $25.00. For additional information, contact Postgraduate Activities office, California Medical Association, 2975 Wilshire Boulevard, Los Angeles 5. **All California Medical Association members and their families are cordially invited to attend.**

PUBLIC HEALTH REPORT

MALCOLM H. MERRILL, *M.D., M.P.H.*
Director, California State Department of Public Health

SIXTEEN LOCAL health departments currently are engaged in 26 demonstration and research projects supported by State grants totaling $222,000 and covering the fields of maternal and child health, occupational health, aging and chronic disease.

The local projects encompass a broad range of public health interest, such as the demonstration of a home nursing program in a rural area, the study of gonadal exposure from medical radiation, a demonstration of patient restorative services in a nursing home, a rehabilitation nursing program for the disabled and elderly at Fairmont Hospital, evaluation of a hearing conservation program and the distribution and characteristics of staphylococcal infections in a general hospital.

Purpose of the program is to focus attention on the changing needs in the fields of occupational health, aging and chronic disease and maternal and child health; to advance public health knowledge and practice, and to encourage research in these fields within local health departments.

In operation, a local health agency submits a project application to this department. Twice a year an advisory committee meets to review applications. The committee is composed of local health officers and representatives from schools of public health, schools of medicine, voluntary health agencies and private physicians.

The advisory group gives priority rating to approved applications and submits recommendations to the director for action. Applications are considered on the basis of clarity and worthiness of objectives, adequacy of proposed research or demonstration methods, soundness of the plan for evaluation and practicality of budget, staff and facilities.

Participating in the program are the county health departments of Yolo, Butte, Los Angeles, Shasta, San Bernardino, Contra Costa, Marin, San Joaquin, Santa Cruz, San Francisco, Alameda, San Mateo, Santa Clara and Modoc counties. Participating city health departments are those of Los Angeles and Long Beach.

* * *

Meeting in San Francisco February 26 and 27, the California Conference of Local Health Officers endorsed the California Medical Association's three-point program for assuring the protection of the inadequately vaccinated against paralytic poliomyelitis.

The endorsement followed a February 24 joint meeting of the conference members with C.M.A. staff and representatives of local medical societies to consider plans for community poliomyelitis vaccination programs.

The meeting, arranged by the C.M.A. and this department, emphasized the concern of private medicine and public health with the failure of thousands of susceptible Californians to seek protection against paralytic poliomyelitis.

The conference also gave support to the C.M.A. resolution for the development of cytology screening programs for cervical cancer case finding and endorsed the Association's suggestions for stimulating immunization against tetanus. It was recommended that local health officers cooperate to the fullest in assuring success of these programs.

* * *

The State Board of Public Health in February quarantined a four-mile stretch of beach on Monterey Bay in the vicinity of the Watsonville sewer system outfall because of sewage in the water and on the beach.

The quarantine area extends from the southern boundary of Sunset Beach State Park in Santa Cruz County to the southern boundary of Zmudowski Beach Park in Monterey County. The public will be barred from the area, one of the best clamming spots in California, during the quarantine period.

Watsonville city officials informed the board that plans have been drafted for a new sewage treatment plant and that it should be completed and in operation about July 1 of next year.

* * *

Available from the U. S. Public Health Service is a pamphlet describing the activities of the Clinical Center of the National Institutes of Health at Bethesda, Maryland.

The center is accepting a limited number of patients each month for study and therapy. Patients are admitted only on referral by a physician. The brochure, entitled "Current Clinical Studies and Patient Referral Procedures," describes briefly the studies to which patients are currently being admitted.

WOMAN'S AUXILIARY
TO THE CALIFORNIA MEDICAL ASSOCIATION

WITH THIS ISSUE of CALIFORNIA MEDICINE your State Auxiliary begins a new year. Just five years ago through the efforts of Mrs. Frederick J. Miller of Bakersfield, our state president at that time, this page in CALIFORNIA MEDICINE was secured for the Woman's Auxiliary.

During these five years our membership has increased by 1,200. Three county auxiliaries have been added, Merced, Tulare and Tehama. It would be our pleasure to add to that number during this year.

While our membership has increased, our projects, like our objectives, have remained the same. The American Medical Education Foundation program ranks high on the list for county participation, with all but three of the counties having contributed to this date. Money for A.M.E.F. is raised by assessment of members and benefit parties within the counties. Figures on total contributions will be available at the close of the fiscal year.

Also outstanding is our Nurse Recruitment and Scholarship program. In some counties a few physicians have objected to the county auxiliary participating in the Nurse Recruitment and Scholarship program because the nurses that receive the scholarships often do not return to their home counties after graduation. This may be true but with almost all county auxiliaries participating in the scholarship program there will be a migration of nurses from one part of the state to another to equalize the distribution of trained nurses having received help from the Auxiliary.

According to the latest figures, in the thirty-four organized county auxiliaries 25 counties give nursing scholarships, varying in amounts from $100 to $500 per student for a three-year period. Five of these same counties also have loan funds for student nurses, three counties have loan funds only and one county has a loan fund for nurses and also gives scholarships to medical students. Five counties do not participate in either the loan or scholarship program. (Some in the latter category have too small a membership to carry the burden of such a program.) Twenty-six of the organized counties sponsor Future Nurse Clubs.

This indicates the willingness of all the members to participate in the Auxiliary program and thus further one of our prime objectives, "To assist the California Medical Association in its program for the advancement of medicine and public health." This year we also plan to place emphasis on another objective, incorporated in our Constitution, which reads: "To cultivate friendly relations and promote mutual understanding among physicians' families." As a reminder of this objective our theme for the year is, *Focus on Friendly Relations.*

To keep in closer touch with the county auxiliaries, encourage their suggestions and answer any questions, a newsletter, "Auxilirama" will be sent out periodically throughout the year to State Board members, county presidents, county presidents-elect and members-at-large. At this time we have ten members-at-large. They are wives of physicians residing in a county where there is no component auxiliary. Women in this category may apply to the State Auxiliary for membership or they may apply for membership in a nearby county having an auxiliary.

There are still many physicians' wives who are not members of our Auxiliary. In fact, the membership in the Auxiliary is less than half the membership in the California Medical Association. If your wife is not a member, will you please encourage her to join us—to help us assist organized medicine in its effort to bring about a better way of life for all.

MRS. THEODORE A. POSKA
President, Woman's Auxiliary to the California Medical Association

NEWS & NOTES

NATIONAL • STATE • COUNTY

BUTTE

Dr. Arnold W. Brockmole has been **appointed health officer** of Butte County, replacing Dr. Ronald Hewitt, who was serving pro tem. Dr. Brockmole was formerly assistant county health officer, epidemiologist and director of communicable disease control at Evansville, Indiana.

LOS ANGELES

Two grants totalling $117,300 for two research projects being carried on at **St. Joseph Hospital,** Burbank, were awarded recently by the National Institutes of Health of the Department of Health, Education, and Welfare. The hospital will receive $77,300 for a study directed by Dr. Peter F. Salisbury on mechanisms that influence the circulation of blood. The other grant, of $40,000, was made to support work by Dr. I. Alfred Breckler on the development of an oxygenator of a new kind that uses ultrasonic principles to promote the interchange of gasses in the blood.

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The 30th annual meeting of the **Aero Medical Association** will be held April 27 to 29 at the Statler-Hilton Hotel, Los Angeles. To be held in conjunction with this meeting are meetings of the Airlines Medical Directors Association and the Civil Aviation Medical Association.

Announcement of the meeting said that there are to be 150 scientific papers covering the entire field of aviation and space medicine.

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Dr. G. E. Norward has been appointed assistant dean of the College of Medical Evangelists. He had been a member of the faculty for several years as assistant clinical professor of obstetrics and gynecology.

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The Los Angeles Doctors' Symphony Orchestra named the following new officers at its recent annual elections: Lester M. Morrison, M.D., president; Jesse Younger, M.D., vice-president; William Curry, D.D.S., secretary; Jack Brody, M.D., treasurer; Mrs. Jack Brody, librarian.

The Los Angeles Doctors' Symphony Orchestra, a five-year-old, nonprofit organization sponsored by the Los Angeles County Medical Association, holds weekly rehearsals and gives two symphonic concerts yearly for charitable purposes.

RIVERSIDE

Two associate professors of chemistry at University of Redlands are joint recipients of **a research grant** of $5,500 announced recently by the Riverside County Heart Association. The grant is to support studies they are carrying out on the nature of the protein molecule.

MERCED

Dr. Gerald D. Wood of Merced has been installed as president of the Merced County Medical Society and Dr. Bruce E. McDowell was elected president-elect. Other officers elected are Dr. Zdenek Fluss, secretary-treasurer, and Dr. Addison Udall, vice-president.

SAN FRANCISCO

The annual concert of the San Francisco Medical Society Symphony Orchestra to be played April 19 at 2 p.m. in the Masonic Memorial Temple will be dedicated to the **memory of Dr. Frederic C. Bost,** who died in February of this year.

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Under a $255,000 grant from the Russell Sage Foundation, **Stanford Medical School** will establish **a new teaching and research** program that combines social sciences with medicine.

Students and faculty of the medical school and of the departments of sociology, psychology, and anthropology will collaborate. The program will begin next fall when the medical school moves into its new $20 million center on the campus.

The Russell Sage grant will provide basic support for the first five years. It will finance a beginning staff, student fellowships, and some research. Nurses, social workers, and other members of the health team are expected to join the program eventually.

Long-range plans were developed from studies supported by an earlier grant from the foundation. The planners included Associate Dean Lyman M. Stowe of the medical school, and Professors Rodney R. Beard of preventive medicine, Thomas A. Gonda of psychiatry, and Edmund H. Volkart of sociology. Professor Volkart will direct the program during its first year.

SOLANO

Dr. Robert W. Hoellwarth, Vallejo, was installed as president of the Solano County Medical Society at a recent meeting of the organization, and Dr. Elwin W. Midgely, formerly secretary-treasurer, was named president-elect. Dr. Hoellwarth succeeded Dr. George M. Budd, who was elected a director. Dr. Douglas J. Woodward was elected secretary-treasurer.

VENTURA

The Ventura County Heart Association recently announced award of three grants totalling $16,950 in aid of research in three California institutions. The grants, all for research into the relation of blood lipids to arterial disease, were:

To Dr. Laurance Kinsell, Institute of Metabolic Research, Highland Alameda County Hospital, $10,000.

To Dr. Jessie Marmorston, University of Southern California School of Medicine, $5,000.

To Dr. Lyon Chaikoff, department of physiology, University of California School of Medicine, San Francisco, $1,950.

GENERAL

A California Medical Eye Council was organized during the recent California Medical Association meeting in San Francisco by a statewide group of ophthalmologists to implement the educational activities of the National Medical Foundation for Eye Care on the state level. A prime purpose of the organization is to inform the public of the importance of a medical examination of the eye for the purpose of **recognizing glaucoma** in its early stages when it may still respond to conservative treatment.

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The Western Section of the **American Urological Association** will hold its 35th annual convention at the Fairgrounds at Monterey, May 17 through 21, 1959. Further information may be obtained from Dr. James Ownby, Jr., 516 Sutter Street, San Francisco.

POSTGRADUATE

EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education programs and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 2975 Wilshire Boulevard, Los Angeles 5.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Current Developments in Nutrition (Arrowhead). Friday, Saturday and Sunday. April 24, 25 and 26. Ten hours. Fee: $50.00 (includes board and room).

Fetal Electrocardiography. Friday and Saturday, June 5 and 6. Twelve hours. Fee: $40.00.

Workshop for Food Service Workers—Equipment Maintenance. Monday and Tuesday, June 15 and 16. Twelve hours. Fee: $20.00 (includes two lunches).

Techniques of Hypnosis. Monday, Tuesday and Wednesday morning, June 15, 16 and 17. Fifteen hours. Fee: $65.00.†

Advanced Techniques and Application of Hypnosis. Wednesday afternoon and Thursday and Friday, June 17, 18 and 19. Fifteen hours. Fee: $110.00.†

Office Urology. Wednesday, June 17. Six hours. Fee: $25.00.

Surgical Technique Utilizing the Isolated Intestinal Segment in Urological Procedures. Thursday, June 18. Seven hours. Fee: $150.00.†

Eighth Annual Symposium in Clinical Laboratory Technology. Saturday and Sunday, June 20 and 21. Twelve hours. Fee: $20.00 (includes one lunch).

Dissection of the Thorax, Abdomen and Pelvis. Tuesday and Wednesday, June 23 and 24. Twelve hours.*†

Dissection of the Extremities. Thursday and Friday, June 25 and 26. Twelve hours.*†

Hand Surgery. Saturday and Sunday, June 27 and 28. Twelve hours.*

Infertility. Friday and Saturday, July 24 and 25. Twelve hours.*

The Impact of Surgery on Anesthesia. Wednesday, Thursday and Friday, August 5, 6 and 7. Eighteen hours. Fee: $50.00.

Three Summer Seminars at University of California Residential Conference Center, Lake Arrowhead (all fees at Lake Arrowhead include room and board):

Pediatric Cardiology. Sunday through Wednesday, August 16 through 19. Fifteen hours. Fee: $137.50.† Guest speaker: John Lind, M.D., Stockholm, Sweden.

Emotional Problems in Office Practice. Wednesday through Sunday, August 19 through 23. Fifteen hours. Fee: $150.00.†

Seminars in Internal Medicine. Sunday through Wednesday, August 23 through 26. Fifteen hours. Fee: $137.50.†

Clinical Traineeships—Anesthesia and Dermatology. Dates by arrangement. Minimum period—two weeks. Fee: Two weeks, $150.00; four weeks, $250.00.

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 7114.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Nursing in Rehabilitation. Monday to Friday, April 27 through May 15. One hundred and five hours. No fee.

Ear-Nose-Throat. Friday and Saturday, May 15 and 16. Fourteen hours. Fee: $40.00.

Orthopedics (Mt. Zion Hospital). Friday and Saturday, May 15 and 16. Fourteen hours. Fee: $40.00.

Practical Aspects in the Management and Treatment of Cardiovascular Disease. Saturday, Sunday and Monday, May 16, 17 and 18. Twenty-one hours.*

Pediatrics. Wednesday through Saturday, June 17 through 20. Twenty-eight hours.*

Fundamental Practices of Radioactivity and the Diagnostic and Therapeutic Uses of Radioisotopes. Two or three month course limited to one enrollee per month. Fee: $350.00.

Contact: Seymour M. Farber, M.D., Assistant Dean, Department of Continuing Medical Education, University of California Medical Center, San Francisco 22. MOntrose 4-3600, Ext. 665.

STANFORD UNIVERSITY SCHOOL OF MEDICINE

Morning Clinical Conferences, each Monday, Room 515. *Contact:* D. H. Pischel, M.D., Professor, Division of Ophthalmology, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

Operable Heart Disease. Thursday, Friday and Saturday, April 30, May 1 and 2. Fee: $40.00.

Contact: Mrs. Alice Crouch, Postgraduate Secretary, Stanford Medical School, 2398 Sacramento St., San Francisco 15.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. USC Medical Research Building, Room 211, 2025 Zonal Avenue. Residents and interns of Los Angeles County, and all armed forces medical personnel admitted without fee. Tuition for all other physicians $30.00. (Each session all-inclusive.)

Basic Home Course in Electrocardiography. One year postgraduate series, electrocardiogram interpretation by

* Fees to be announced.
† Limited enrollment.

mail. Physicians may register at any time and receive all 52 issues. Fifty-two weeks. Fee: $100.00.

Advance Home Course in Electrocardiography. One year postgraduate series, electrocardiogram interpretation by mail. Fifty-two issues: $85.00. Physicians may register at any time.

SPECIAL ANNOUNCEMENT: Last summer a postgraduate refresher course held in Hawaii was so successful that the USC School of Medicine will offer another refresher course in Hawaii and on board the *S.S. Lurline* from July 29 to August 14. (As a time and money saver, round trip air travel is also possible July 29 to August 10.)

Intensive Review of Internal Medicine. Monday through Friday, September 21 through October 2. 9 to 12:30 a.m.*

Alumni Homecoming Course. Recent Advances in Medicine. Thursday and Friday, November 5 and 6. Fee: $50.00.

Contact: Phil R. Manning, M.D., Associate Dean and Director, Postgraduate Division, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

GENERAL SURGERY AND SURGICAL SPECIALTIES. Full-Time Basic Science Course. Accredited by the American Board of Surgery.

Surgical Anatomy—Head and Neck (14 periods, 63 hours), April 22 through June 3. Tuition: $75.00.

Surgical Anatomy—Head and Neck (12 periods, 24 hours), April 22 through June 3. Tuition: $35.00.

Each Six Months. Anesthesiology (6 months, full-time). Vacancy occurs each six months. Limited to 2 students. Tuition: $350.00.

For information contact: G. E. Norwood, M.D., assistant dean and chairman, Division of Postgraduate Medicine, College of Medical Evangelists, 1720 Brooklyn Ave., Los Angeles 33. ANgelus 9-7241, Ext. 214.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE COURSES

POSTGRADUATE INSTITUTES

SOUTHERN COUNTIES in cooperation with University of California, San Francisco, April 23 and 24, Disneyland. DYNAMIC CONCEPTS IN MEDICINE—A TWO-DAY SYMPOSIUM ON THE PSYCHOLOGICAL FACTORS IN MEDICAL PRACTICE. Chairman: E. F. Cain, M.D., 200 N. Palm, Anaheim.

WEST COAST COUNTIES in cooperation with Stanford University School of Medicine, May 14 and 15, La Playa Hotel and Golden Bough Theater, Carmel. Chairman: Chester G. Moore, M.D., 440 E. Romie Lane, Salinas.

NORTH COAST COUNTIES in cooperation with UCLA School of Medicine, June 5 and 6, Hoberg's Ranch, Lake County. Chairman: Lee Zieber, M.D., 1177 Montgomery Dr., Santa Rosa.

SACRAMENTO VALLEY COUNTIES in cooperation with University of Southern California School of Medicine, June 25 and 26, Tahoe Tavern, Lake Tahoe. Chairman: Robert H. Quillinan, M.D., 616 Alhambra Blvd., Sacramento.

AUDIO DIGEST FOUNDATION, a nonprofit subsidiary of the C.M.A., now offers (on a subscription basis) a series of hour-long tape recordings designed to keep the physician abreast of current happenings in his particular field. Composed of practice-useful abstracts from 600 leading journals, with short lectures and editorial comments from prominent physicians, Audio Digest offers programs covering general practice, surgery, internal medicine, obstetrics and gynecology, and pediatrics.

AUDIO-DIGEST plans to begin a new series of programs covering the specialty of Anesthesiology. The first of these will be issued early this year. Those wishing to be charter subscribers to this tape-recorded review of what is new and important in the field of Anesthesiology should write to Mr. Claron L. Oakley, Editor, 1919 Wilshire Boulevard, Los Angeles 57, HUbbard 3-3451, for order form and further information.

Contact: Claron L. Oakley, editor, 1919 Wilshire Blvd., Los Angeles 57.

Medical Dates Bulletin

APRIL MEETINGS

PALO ALTO MEDICAL CLINIC Second Annual Medical Symposia: Cardiology and Immunology, April 18, 8:30 a.m., Clinic Auditorium. *Contact:* John F. Weigen, M.D., program chairman, Palo Alto Medical Clinic, Palo Alto, Calif.

BAKERSFIELD SURGICAL SOCIETY Meeting, April 18, 8:30 p.m. *Contact:* Chas. P. Marvin, M.D., 2628 G Street, Bakersfield.

AMERICAN SOCIETY OF INTERNAL MEDICINE 3rd Annual Meeting. April 19, Conrad Hilton Hotel, Chicago. *Contact:* Clyde C. Greene, Jr., M.D., assistant secretary-treasurer, 350 Post Street, San Francisco 8.

AMERICAN ASSOCIATION FOR THORACIC SURGERY. April 21 through 23, Statler Hotel, Los Angeles. *Contact:* Hiram T. Langston, M.D., secretary, 7730 Carondelet Avenue, St. Louis 5, Missouri.

SIXTH ANNUAL FORT MILEY MEDICAL CLINICS AND SYMPOSIA, sponsored by San Francisco Academy of General Practice in cooperation with faculties of Stanford and U. C. Schools of Medicine. April 21 through May 26, Fort Miley Veterans Administration Hospital, 42nd Avenue and Clement Street, San Francisco. 8 p.m. each Tuesday, ending May 26, 1959. Registration fee: Members $15.00; nonmembers $20.00 *Contact:* Robert W. Wolf, M.D., chairman, 760 Market Street, San Francisco 2.

HAWAII MEDICAL ASSOCIATION Annual Meeting, April 23 through 25, Hilo. *Contact:* Miss Lee McCaslin, executive secretary, 510 S. Beretania Street, Honolulu 13.

CALIFORNIA MEDICAL ASSOCIATION RURAL HEALTH CONFERENCE. April 24 and 25, Hacienda Hotel, Fresno. *Contact:* Robert Marvin, C.M.A., 450 Sutter Street, San Francisco 8.

AERO MEDICAL ASSOCIATION. April 27 through 29, Hotel Statler, Los Angeles. *Contact:* Thomas H. Sutherland, M.D., secretary, P. O. Box 26, Marion, Ohio.

MAY MEETINGS

PACIFIC COAST SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY Meeting. May 3 through 8, Riviera Hotel, Las Vegas, Nevada. *Contact:* Walter P. Work, M.D., secretary, 384 Post Street, San Francisco.

LOS ANGELES COUNTY HEART ASSOCIATION Annual Membership Meeting, May 6, 12 noon, Statler Hotel. *Contact:* C. A. Alexander, executive director, 660 S. Western Avenue, Los Angeles 5.

THE NEVADA ACADEMY OF GENERAL PRACTICE Annual Meeting, May 21 through 23, Riverside Hotel, Reno. Program by University of Southern California School of Medicine. *Contact:* Roy M. Peters, M.D., chairman, 475 S. Arlington Avenue, Reno, Nevada.

CALIFORNIA HEART ASSOCIATION Annual Meeting, May 22 through May 24, 1959. Scientific Session and Directors Meeting, Lafayette Hotel, Long Beach. *Contact:* J. Keith Thwaites, executive director, 1428 Bush Street, San Francisco 9.

SUMMER AND FALL MEETINGS

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION Annual Meeting. June 2 through 5, Sheraton-Palace Hotel, San Francisco. *Contact:* Mrs. L. Amy Darter, secretary-treasurer, 2151 Berkeley Way, Berkeley 4.

NEVADA STATE MEDICAL ASSOCIATION, Annual Session, jointly with Reno Surgical Society, August 19 through 22, Mapes Hotel, Reno. *Contact:* Nelson B. Neff, executive secretary, P. O. Box 188, Reno.

SAINT JOHN'S HOSPITAL Postgraduate Assembly, September 10 through 12, Saint John's Hospital, Santa Monica. *Contact:* John C. Eagan, M.D., director, Postgraduate Assembly, 1328 22nd Street, Santa Monica.

WASHINGTON STATE MEDICAL ASSOCIATION Annual Meeting, September 13 through 16, Olympic Hotel, Seattle, Washington. *Contact:* Ralph W. Neill, executive secretary, 1309 Seventh Avenue, Seattle, Washington.

OREGON STATE MEDICAL SOCIETY Annual Meeting, September 23 through 25, Medford, Oregon. *Contact:* Mr. Roscoe K. Miller, executive secretary, 1115 S.W. Taylor St., Portland 5, Oregon.

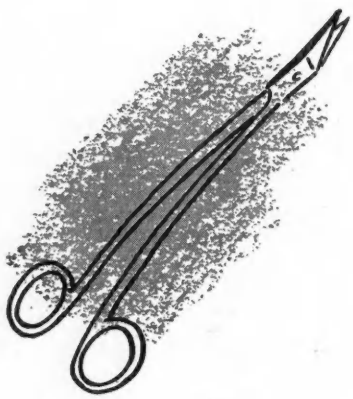
SAN FRANCISCO HEART ASSOCIATION 29th Annual Postgraduate Symposium on Heart Disease. September 30, October 1 and 2, 9 a.m. to 5 p.m. daily, St. Francis Hotel, San Francisco. *Contact:* Lawrence I. Kramer, Jr., executive director, 259 Geary Street, San Francisco 2. YUkon 2-5753.

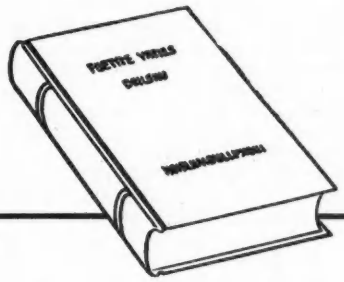
WESTERN INDUSTRIAL MEDICAL ASSOCIATION, INC. 18th Annual Meeting, held in conjunction with Third Western Industrial Health Conference, all day October 2 and 3, Statler Hotel, Los Angeles. *Contact:* A. C. Remington, M.D., medical director, AiResearch Mfg. Co., 9851 Sepulveda Blvd., Los Angeles 45.

CALIFORNIA SOCIETY OF INTERNAL MEDICINE Annual Meeting, October 2 through 4, Miramar Hotel, Santa Barbara. *Contact:* Mrs. Mildred B. Coleman, executive secretary, or Clyde C. Greene, Jr., M.D., secretary-treasurer, 350 Post Street, San Francisco 8.

CALIFORNIA LEAGUE FOR NURSING Annual Meeting, October 8 through October 10, U. S. Grant Hotel, San Diego. *Contact:* Ruth I. Jorgensen, general director, Room 202, 465 Post St., San Francisco 2.

AMERICAN ACADEMY FOR CEREBRAL PALSY Annual Meeting, November 30 through December 2, Statler Hotel, Los Angeles. *Contact:* Margaret H. Jones, M.D., local arrangements chairman, associate professor of pediatrics, UCLA School of Medicine, Los Angeles 24.





THE PHYSICIAN'S *Bookshelf*

BONE TUMORS—Second Edition—Louis Lichtenstein, M.D., Chief Pathologist, VA Hospital, Los Angeles. The C. V. Mosby Company, St. Louis, 1959. 402 pages, 220 illustrations, $12.00.

This new edition of Lichtenstein's well known book appears in 24 chapters (adding two to the old list) and two appendices (adding one). The general format of the first edition has been adhered to. After two chapters dealing with general remarks and one with classification, there are chapters on osteochondroma, enchondroma, chondroblastoma, and the other benign and malignant lesions of bone.

Chapter 22 deals with "so-called adamantinoma of limb bones," 23 metastatic carcinoma, and 24 with tumors of periosteal origin. The appendices deal with nonneoplastic lesions of bone which may be mistaken for tumors, and tumors of synovial joints, bursae and tendon sheaths.

The author has replaced some of the illustrations (for example, figures 5 and 21 of the first edition) with improved ones; we still respectfully suggest that figure 3 should be replaced. Likewise, there is an improvement in the text of the legends: phrases such as "characteristic" have been replaced with "representative," which appears to this reviewer as a more sound roentgen description.

There is an important sentence in Chapter 1 dealing with the management of bone lesions that merits amplification and revision. The author writes: "If roentgen therapy is the treatment of choice for whatever reason, employ the smallest dose calculated to be effective. In general, a total tumor dose far exceeding 3,000 r should be avoided, if only because of the potential hazard of postirradiation sarcoma (after a latent interval usually of five years or more)." Radiologists recognize that the expression "3,000 r" is almost meaningless without specifying the *area* irradiated and the *time* during which the irradiation was given. In other words, 3,000 r to a 5 cm. diameter area in six months would have little effect. However, the same dose to the same area in one day would be hazardous. Furthermore, just as radical surgery for the cure of localized malignant disease carries some hazard, radical radiotherapy for the attempted cure of such lesions as monosteal Ewing's tumor or monosteal reticulum-cell sarcoma does carry some hazard. This is an acceptable hazard if a useful limb is preserved for twenty-five years. A tumor dose of more than 3,000 r may be necessary for the radical cure of some of these lesions.

There is an excellent section on the inherent limitations of roentgenographic interpretation (page 23) which should be followed by a comparable section on the inherent limitations of histopathologic interpretation. The reviewer believes that a busy clinical radiologist sees more bone tumors each year than any other physician. Therefore, he suggests that a wise first step in the differential diagnosis of bone tumors is consultation with two or three experienced clinical radiologists, and recording their respective opinions. Following such consultation, biopsy may be indicated, and may require review by two or three experienced pathologists for final identification of the tumor at hand.

The work is well illustrated and handsomely printed. It can be recommended to general surgeons, orthopedists and radiologists.

L. HENRY GARLAND, M.B.

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SEX AND THE ADOLESCENT—Maxine Davis; foreword by J. Roswell Gallagher, M.D. The Dial Press, 461 Fourth Avenue, New York 16, N. Y., 1958. 317 pages, $5.00.

The book tries to live up to its subtitle, "A Guide for Young People and Their Parents," and on the whole does a good job. It is written in simple, nontechnical language that can be easily understood by the average adolescent—and the average parent. The first part of the book is about boys, the second about girls, and the third about boys and girls together; a logical way of discussing the subject.

There are some excellent objective discussions in the chapters titled "Dating and Petting," "Going Steady," "The Great Debate: Intercourse Before Marriage," "Health Problems," "Drinking," and "Getting Along with Parents," which give arguments pro and con. The conclusions drawn undoubtedly will please almost all readers in that they strive to show the adolescent that the only really satisfactory sex practice is heterosexual relations between married partners. The book is quite frank and in general gives adequate and accurate information on the subjects discussed.

At times, however, the author backs down a little, obviously feeling that too much information may unduly stimulate curiosity. So, for example, Chapter 6, entitled "Homosexuality—What It Is and Is *Not*," gives no simple statement of what homosexuality is. Since there is much argument among psychiatrists and other physicians and scientists about latent and overt homosexuality and mixture of homo- and heterosexuality, some effort should have been made to clarify these points. In Chapter 21, on sexual abnormality, the definition of sexual perversion as "an emotional condition in which a person cannot find satisfaction in normal intercourse with a partner of the opposite sex," would probably satisfy most persons. However, many so-called perverts also enjoy "normal heterosexuality." The general discussion of homosexuality seems in line with the best thinking at the present time. The author states that some homosexual impulses commonly appear in everyone at times, particularly around the age of puberty. The adult homosexual she regards as a sick person who needs help and who will undoubtedly be unhappy in our American culture if he has such strong homosexual impulses that he ends up leading a homosexual existence. This is a sound attitude in that it neither glorifies homosexuality nor tends to stimulate further the adolescent's curiosity.

The reviewer recommends this book as one of the best to put in the hands of both the adolescent and the parent.

KARL M. BOWMAN, M.D.

PSYCHOSOMATIC OPHTHALMOLOGY—T. F. Schlaegel, Jr., M.D., Assistant Professor of Ophthalmology, Director of Research, Department of Ophthalmology, Indiana University School of Medicine, Indianapolis, Indiana, with the collaboration of Millard Hoyt, M.D., formerly Director of the Adult Psychiatry Outpatient Clinic and Instructor in Psychiatry, Indiana University School of Medicine. The Williams & Wilkins Company, Baltimore, 1957. 523 pages, $11.00.

The psychosomatic approach to ophthalmology is relatively new and has been neglected by many ophthalmologists, although most realize its importance.

Doctor Schlaegel, who is assistant professor of ophthalmology at Indiana University School of Medicine, has had training in psychiatry, which is apparent when one reads the book. He had defined psychosomatic ophthalmology as a method of approach in which somatic investigation is not neglected but in which psychologic and somatic factors are considered conjointly.

In this volume Doctor Schlaegel has assembled the widely scattered literature on the subject and has attempted to evaluate it. To this material he has added his own observations and case histories.

The book has been divided into five parts dealing with general considerations, with some general conditions which may involve the eye, ocular conditions according to anatomic location, ocular conditions without strict anatomic location and psychosomatic approach to treatment.

Whether or not one agrees with the ideas put forth, the book should be read, especially the first part which gives the modern approach to psychosomatic ophthalmology. The book is very readable and has a good deal of food for thought. The chapter of surgery seemed to be particularly rewarding.

While it may be considered controversial, the book should be in the library of every ophthalmologist and those who are interested in psychomatic medicine.

The paper, type and general format of the book are up to the usual high standard of Williams and Wilkins.

FREDERICK C. CORDES, M.D.

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BREAST CANCER (The Second Biennial Louisiana Cancer Conference, New Orleans, January 22-23, 1958)—Edited by Albert Segaloff, M.D., Director of Endocrine Research, Alton Ochsner Medical Foundation; Associate Professor of Clinical Medicine, Tulane University School of Medicine. Sponsored by the American Cancer Society, Louisiana Division, Inc. The C. V. Mosby Company, St. Louis, 1958. 257 pages, $5.00.

Breast cancer remains ubiquitous and a therapeutic enigma. In an attempt to make matters less enigmatic, a special cancer conference was held at New Orleans in January 1958. This book summarizes the proceedings.

The first section deals with "Basic Biology," and consists of articles on epidemiology, biologic determinism, pathology, cytology, etiology and the care of terminally ill patients. In this section one of the brighter chapters deals with pathology and its endless variations. Figures 13 to 22 inclusive show photomicrographs of apparently ten different types of breast cancer. However, they were all taken from the same cancerous breast. Macdonald summarizes his evidence for believing that about 55 per cent of primary breast cancers are inherently unfavorable (remote spread occurs before the tumors are clinically detectable), about 20 per cent are favorable (slow growth), and in the remaining 25 per cent prognosis is related to promptness of adequate treatment. This is the one group in which educational propaganda may prove useful.

The second section deals with "Definitive Treatment"—ranging from simple to radical surgery and moderate to radical radiotherapy. By radical surgery is meant the removal of the internal mammary chain en bloc with the breast, the axillary contents, the suitable area of skin, etc. The advantages and limitations of the McWhirter program are outlined and the excellent results obtained by this careful worker described in some detail.

The third section deals with "Basic Biology" from the hormonal and metabolic viewpoint. Some possibilities of chemotherapy in advanced breast cancer are outlined.

The fourth section deals with "Hormonal Therapy," subtractive or additive. That roentgen castration is just as effective as surgical castration for the palliation of advanced mammary cancer is now well established. But habit is ingrained, and there is some persistent partiality for surgical. Gordon and Segaloff conclude on page 196 that x-ray or surgery *yield the same results, with similar hormone changes*, "if the x-ray therapy is given over a period of at least seven days." Like surgery, x-ray therapy must be competently accomplished. Adrenalectomy is discussed at some length, but hypophysectomy is accorded only brief space.

The monograph terminates with a summation by the editor, who must be congratulated on securing such prompt publication of so commendable a collection of essays. The work is recommended especially for internists, surgeons, generalists and radiologists.

L. HENRY GARLAND, M.B.

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EMERGENCY WAR SURGERY—U. S. Armed Forces issue of NATO Handbook, Prepared for Use by the Medical Services of NATO Nations. Prepared under the sponsorship of the Assistant Secretary of Defense (Health and Medical) Frank B. Berry, M.D. Printed by the United States Government Printing Office, Washington, D. C., 1958. Sold by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., 411 pages, $2.25.

This book, Emergency War Surgery, is the U. S. Armed Forces issue of the NATO Handbook. It has been prepared for use by the Medical Services of NATO nations. The purpose of the book is to see that the information on emergency war surgery gained from the past major conflicts is reviewed, brought up-to-date and does not lie fallow between conflicts. It is hoped, of course, that knowledge of this type will not have to be used in the future, but inevitably physicians must be prepared for the special exigencies of war surgery.

Military surgery is designed to carry out specialized and essential medical care under adverse conditions of war. It is further characterized by the fact that the welfare of the individual must be sacrificed at times to the demands of the military effort and tactical situations of conflict. This brief but excellent book of 380 small pages of text, clearly written, nicely printed and beautifully presented, summarizes our present state of knowledge with respect to mass casualties, thermal burns, thermonuclear injuries, radiation injuries, response of the body to wounding, metabolic disturbances after trauma, infection, and general wound management in its opening chapters. It then proceeds to the discussion of sorting of casualties and care of patients at battalion aid stations prior to transportation back to definitive hospital care. The principles of emergency management are stressed throughout in injuries of the soft tissues, vascular injuries, bone and joint injuries, nerve injuries, abdominal and thoracic wounds. It is simply but profusely illustrated. It is an excellent handbook of emergency war surgery and one with which every physician should be thoroughly acquainted, be he general practitioner, internist, or surgeon.

The details of surgical management are not given but the principles of medical care are simply and admirably stated. The book is highly recommended for its special coverage of the problems in emergency war surgery.

VICTOR RICHARDS, M.D.

INTRACARDIAC PHENOMENA—In Right and Left Heart Catheterization, A Second Edition, Revised and Enlarged, of Cardiac Pressures and Pulses—Aldo A. Luisada, M.D., Director, Division of Cardiology and Associate Professor of Medicine, The Chicago Medical School, and Chi Kong Liu, M.D., Chief, Laboratory of Catheterization and Associate of Clinical Medicine, The Chicago Medical School. Grune and Stratton, New York, 1958. 179 pages, $9.50.

This is a revised and enlarged version of Cardiac Pressures and Pulses which appeared two years ago. The authors have added sections on left heart catheterization, intracardiac phonocardiography and intracardiac electrocardiography as well as including more material in other chapters. The volume is unique in its field and offers valuable information regarding the cardiac cycle, intracardiac pressure pulses and the technics of right and left cardiac catheterization. Most of the material presented is from the authors' own experience which limits its coverage. The chapters on intracardiac phonocardiography and electrocardiography which are, at present, of little practical importance in cardiac catheterization studies, could well have been left out or replaced with a chapter on the use of dye curves—a much more widely employed technic. The quality of the illustrations remains poor and the continued employment of the phonocardiogram in the pressure tracings for timing purposes will limit the value of the records for most workers who employ the electrocardiogram instead. On page 56, for example, appears an illustration of the pressure tracing from a wedged position in the coronary sinus. Because of tachycardia, systole and diastole are of equal length and in the simultaneously recorded phonocardiogram it is not possible to identify the first or second sounds. Hence, timing of the pressure pulse is impossible. Readers may experience some skepticism about the correct diagnosis of some of the cardiac lesions studied when surgical or anatomical confirmation is not described.

In spite of its deficiencies this volume contains so much information that it should be on the shelves of all laboratories engaged in cardiac catheterization studies.

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PERSONALITY CHANGE AND DEVELOPMENT—As Measured by the Projective Techniques—Molly Harrower, Ph.D., Clinical Psychologist, New York City; Chairman, State Advisory Council in Psychology, New York State; Associate Research Professor of Clinical Psychology, Department of Psychiatry, Temple University Medical Center, Philadelphia. Grune & Stratton, 381 Fourth Avenue, New York 16, N. Y., 1958, 383 pages, $10.00.

In clinical practice, theoretical formulation and research, as psychiatry and clinical psychology have developed they frequently have met at the common ground of projective techniques. Further, as in other areas of behavioral study, the need for follow-up studies has become significant in the effort to determine the effectiveness, short-term or long-range, of psychotherapeutic experiences. Dr. Harrower's text summarizes projective techniques experience with some 4,000 individuals during follow-up periods up to fifteen years.

Several questions are asked in the survey— ". . . to what extent does projective material actually mirror reported change in behavioral adjustment and change in subjective experience? . . . Further, if positive changes are found, do they result from a dropping out of pathologic responses in the second test record, from an increase in positive indices of adjustment, or from a combination of both? Conversely (if subjective reports by the patient and therapist's reports show no change), do the test findings remain unchanged also, or may they even show deterioration—individual changes during periods of normal growth and the passage of five, ten, and fifteen years? Is there such a thing as a 'core personality' which remains relatively unchanged? Are there different types of change introduced by psychotherapeutic techniques, changes not found as a consequence of other experience?"

This is admittedly a large order which the author attempts to meet. For her purposes, she reports a psychological test battery consisting of the verbal part of the Wechsler Bellevue Intelligence Scale, the Rorschach, the Szondi, figure drawings, the Holsopple-Miele Sentence Completion Test, the Most Unpleasant Concept Test, and one or two pictures of the Thematic Apperception Test. After introducing the scope of the study and the need for follow-up studies, Dr. Harrower discusses the problem of retesting with projective techniques and the concept of change, as seen both from the test data and by the therapist.

The main body of test data, interpretations from these, and evaluations by the therapists fill the next three hundred pages and appear as a large collection of anecdotal material. It is difficult to analyze a research design with the test data, projective or other, from individuals of widely differing ages, psychiatric diseases, periods of treatment, successful therapy or lack of it, psychoanalytic and other therapies. Obviously, the main import of the text is for clinical and test study of individuals in a variety of situations, and not an organized research design with *a priori* selection of cases for the matrix to meet design characteristics and sampling requirements.

Among the several conclusions drawn by the author is one which has been reported by many psychologists for some years and again is reflected in the present survey—clinical improvement often appears where the test data do not yet show the change, so there seems a lag before the latter observations are consistent with the clinical studies. The changes in test responses which are reported by the author show clearly the heterogeneity of the sampling and the findings, for of the 24 changes recorded, not more than three were observed for any single individual.

IVAN N. MENSH, Ph.D.

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MODERN TREATMENT YEARBOOK 1958—A Yearbook of Diagnosis and Treatment for the General Practitioner—Edited by Sir Cecil Wakeley, Bt., K.B.E., C.B., LL.D., M.Ch., D.Sc., F.R.C.S., F.R.S.E. Published for The Medical Press by Bailliere, Tindall & Cox, Ltd., London, 1958. U. S. Distributor The Williams and Wilkins Company, Baltimore, 1958. 312 pages, $6.75.

The 1958 volume of the Modern Treatment Yearbook contains a practical series of articles by British authors on conditions encountered from day to day in medicine, surgery and obstetrics. The various authors have chosen common diseases and conditions on which to write and have discussed treatment for these ailments.

On the whole, the treatment is not as close to the results of clinical research as a comparable American series would be. For example, Chapter 1, on The Management of Congenital Heart Disease in General Practice, is the sort of article which might have appeared in the American literature six to ten years ago. Some of the monographs are more authoritarian than the American reader is likely to accept. There is sometimes a lack of correlation between authors. For example, Chapter 7, on Cervical Erosions, gives very little heed to the use of cytology screening for cervical cancer. (It is mentioned only under postcoital bleeding, on page 56.) On the other hand, this subject is given a thorough discussion in Chapter 12.

An interesting sidelight is the presence of a large number of advertisements in both the front and back of the book. This, too, is a departure from what the average American reader expects; he may accept this in magazines but not in a book.

EDGAR WAYBURN, M.D.

HEAD INJURIES—Mechanisms, Diagnosis and Management—E. S. Gurdjian, M.D., Professor of Neurological Surgery and Chairman of the Department of Neurosurgery, Wayne State University College of Medicine; Department of Neurosurgery, Grace and Detroit Memorial Hospitals; and J. E. Webster, M.D., Associate Professor of Neurological Surgery, Wayne State University College of Medicine; Department of Neurosurgery, Grace and Detroit Memorial Hospitals. Little, Brown & Company, Boston, 1958. 482 pages, $14.00.

In presenting the mechanisms, diagnosis and management of head injuries, the authors have drawn upon an extensive experience in both civilian and military neurosurgery over a twenty-five year period. They have also included data derived from 1,285 cases of head injury treated at the Detroit Receiving Hospital between January 1952 and July 1954, and from 151 consecutively autopsied cases of head injury.

The initial chapter is a brief historical treatise concerning the changing concepts of the mechanism and treatment of head injuries from prehistoric to contemporary times. In a chapter devoid of illustrations, certain anatomic features of the head and craniospinal junction are considered. The scalp, skull, paranasal sinuses, orbits, middle ear, meninges, and intracranial vessels are discussed.

One of the major chapters of the book is concerned with the mechanisms of head injuries. The material which the authors present is based primarily on their own experimental work as carried out through studies with stress coat and strain gauge techniques. Their experimental data represent a basic contribution to this subject, and this section of the text is magnificently illustrated with line drawings, photographs, and x-ray reproductions. Perforating and penetrating injuries as well as those injuries of the temporal bone leading to a disturbance of hearing and equilibrium, and injuries of the orbit and visual apparatus, are all clearly presented. Hyperextension and hyperflexion injuries at the craniospinal junction and cranial nerve injuries are presented in a more superficial fashion. The authors' discussion of the mechanism and anatomic pathology of concussion is based on their own experimental work, and some of their conclusions will not find universal acceptance among other workers in this field. The data concerning histological changes in the brain stem in experimental concussion are described vaguely, and are poorly documented with control studies. Their description of cerebral contusions, lacerations, and edema is presented in a classical manner.

In a separate chapter on diagnostic techniques, roentgenography, angiography, skull trephination, pneumoencephalography, ventriculography, electroencephalography, cerebrospinal fluid studies, and radioactive isotope techniques are all discussed. The authors' emphasis on arteriography and their concepts of its safety will not find universal acceptance.

The authors have attempted to discuss the clinical manifestations of head injury in a separate chapter, and have considered the level of consciousness, vital functions, shock, vomiting, cerebral disorders, headache, dizziness and vertigo, signs and symptoms referable to the ear, eye, and nose, and cranial nerve lesions. Metabolic, electrolyte, and blood changes are briefly discussed, as are the clinical manifestations of the so-called "whiplash injury." Separate chapters are assigned to skull fractures, intracranial vascular lesions, hemorrhages and hematomas, the complications of head injuries, and posttraumatic sequelae. The authors have devoted a special chapter to the aspects of head injury in infants and children, to head injuries in sports, and to medicolegal aspects of head injuries. The final two chapters are concerned with the treatment of head injuries, the first being related to nonsurgical conditions and the second to surgical care. The latter chapter is particularly well illustrated with both photographs and drawings.

The organization of the book has introduced an unfortunate reduplication of many topics throughout numerous chapters. It is not a comprehensive textbook insofar as the experimental aspects of head injuries are concerned, in that the major portion of the data presented is based on work carried out by the authors, and the extensive contributions of others are mentioned briefly if at all. The superficial treatment of such important posttraumatic sequelae as carotid-cavernous fistula, hydrocephalus, and epilepsy is further evidence of the incompleteness of the text. The volume is well illustrated and indexed, and in general, each chapter contains a very complete list of references.

This book presents the experience of two extremely competent neurosurgeons in the diagnosis and treatment of head injuries, and presents the numerous clinical and experimental contributions that these men have made toward the understanding of the mechanism of craniocerebral injury. The volume should find a place in the library of most neurosurgeons.

JOHN W. HANBERY, M.D.

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THE ROOTS OF PSYCHOANALYSIS AND PSYCHOTHERAPY—A Search for Principles of General Psychotherapeutics—S. A. Szurek, M.D., Professor, Department of Psychiatry, University of California School of Medicine, San Francisco, California; Director, Children's Service, The Langley Porter Neuropsychiatric Institute. Charles C. Thomas, Publisher, Springfield, Illinois, 1959. 134 pages, $4.25.

Dr. Szurek has written a very scholarly book on a very difficult subject. In it he searches for some of the general principles that are involved in psychotherapy. He attempts to define the similarities and differences between psychotherapy and psychoanalysis and approaches this task by examining five factors which they have in common: The nature and severity of the patient's disorder; the skill of the analyst or therapist; the frequency of sessions; the total number of sessions or duration of treatment; and lastly, the characteristics of the therapeutic situation, which is to some extent a function of the other four factors.

He does not pretend to completely answer the question he has posed but looks upon his study as an indication of how the question may be approached.

There are many technical points covered, such as the feasibility of a flexible approach to the patient—using more "psychotherapeutic" techniques at first if necessary and then continuing with classical analytic methods when the patient's condition improves. While many analysts will not quarrel with such a thesis, they would emphasize more than is done by Dr. Szurek the difficulties that would be inherent in first lending support to a weak ego and then changing goals and assuming a different role and goal.

In dealing with such points Dr. Szurek is addressing himself primarily to psychiatrists and psychoanalysts as well as to "students in allied fields who are professionally concerned with problems of human behavior . . . and methods of individual clinical work with patients."

It is not directed to the average physician who is usually not too clear about the subtle differences between analytic psychotherapy and psychoanalysis and who is most often called upon to treat or to refer patients with emotional disorders. The language and concepts are probably too technical to maintain his interest or enhance his understanding.

The book, as intended by the author, is a courageous and systematic attempt to explore a subject about which there is, as he suggests, much emotional thinking. Many questions are raised and it is to be hoped that his effort will stimulate others to more clearly define the whole area of psychotherapy.

NORMAN Q. BRILL, M.D.